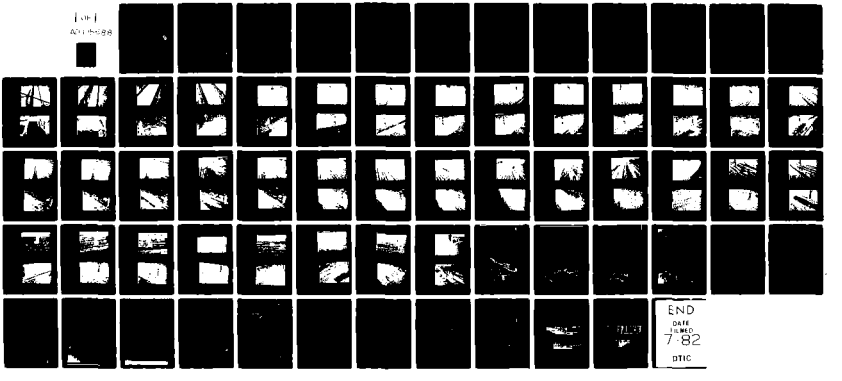
AD-A115 688 ARMY ENGINEER DISTRICT LOUISVILLE KY F/G 13/2
SUPPLEMENT NUMBER 4: SOUTHWESTERN JEFFERSON COUNTY, KENTUCKY--L--ETC(U)
MAR 82

UNCLASSIFIED NL



END
DATE FILMED
7-82
DTIC

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO. A115688

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)
Supplement No. 4: Southwestern Jefferson County, Kentucky--Local Flood Protection Project

5. TYPE OF REPORT & PERIOD COVERED
Foundation Report

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)

8. CONTRACT OR GRANT NUMBER(s)
~~DACW27-81-C-0047~~

9. PERFORMING ORGANIZATION NAME AND ADDRESS
USAED Louisville

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS
USAED (CD-I) Louisville

12. REPORT DATE
March 1982

13. NUMBER OF PAGES
10, 7 plans, 37 l. photos

MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

15. SECURITY CLASS. (of this report)
Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

DTIC ELECTE JUN 18 1982 S D H

18. SUPPLEMENTARY NOTES
Construction section 4a levee and wall; Station 868+90 to station 910+50

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Flood protection
Jefferson County, Kentucky
Foundations
Excavation
Geology

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
Results of inspection of construction site from a point of tie-in at Dixie Highway and Kentucky State Highway 44 to a point just north of Pond Creek.

1-1

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

82 06 14 040

FOUNDATION REPORT

SUPPLEMENT NO. 4

SOUTHWESTERN JEFFERSON COUNTY, KENTUCKY

LOCAL FLOOD PROTECTION PROJECT

CONTRACT NO. DACW27-81-C-0047

CONSTRUCTION SECTION 4A LEVEE AND WALL

STATION 868+90 to STATION 910+50

MARCH 1982

DISCLAIMER NOTICE

THIS DOCUMENT IS BEST QUALITY PRACTICABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

TABLE OF CONTENTS

TEXT

INTRODUCTION

1-01 Location of Section 4A. Section 4A, the fourth reach to be constructed, extends from a point of tie-in at Dixie Highway (Station 868+90), just north of the intersection of Dixie Highway and Kentucky State Highway 44, to a point just north of Pond Creek (Station 910+50). It includes approximately 550 feet of concrete wall, 3,600 feet of earth levee and a closure structure across Kentucky Highway 44. Plate numbers 1 and 2 of this supplement show the location of Section 4A in detail.

1-02 Contractors. The prime contractor for construction of Section 4A was The E. Randle Company of Frankfort, Kentucky. Mr. Gilbert Newman, Vice President, was the home office principal directly responsible for the project. Mr. Kenneth Downs was Project Engineer responsible for all onsite operations throughout the duration of the contract. The E. Randle Company did all concrete work on Section 4A.

Four firms contracted to the prime contractor for earthwork, seeding reinforcing steel and stone and asphalt. These firms were:

a. Earthwork - Bluegrass Contracting Corporation
Lexington, Kentucky

b. Seeding - Four Oaks Landscaping
Vine Grove, Kentucky

c. Reinforcing Steel - National Reinforcing Steel Co.
Louisville, Kentucky

d. Stone and Asphalt - Lucas Paving Company
Radcliff, Kentucky

1-03 Contract Supervision. Government personnel responsible for onsite administration of the Section 4A work was:

Mr. Gary V. Fitzgerald - Resident Engineer
(Beginning through completion)

FOUNDATION EXPLORATIONS

2-01 Subsurface Investigations Prior to Construction. Investigations were made for the levee and floodwall using drive sampling, Denison, NX core, power auger and hand auger methods. The borrow areas were investigated mainly by the use of hand augers. Boring locations are presented in Design Memorandum No. 1 on plates 1B-29, 33-35, 37-42 and 54-61. Graphic logs are presented on plates 63 through 78. Initial drilling to determine the scope of work was begun in 1965 and was accomplished by contract drilling. This was supplemented by District drilling in 1966, 1970 and 1971. A portion of these logs are presented in plate number 3 of this supplement. Locations of the borings are shown on plates 1 and 2 of this supplement.

2-02 Foundation Investigation During Construction. Investigations during construction consisted of visual inspection of the foundation and inspection trench prior to embankment placement. A required inspection trench was excavated from Station 874+15.50 to Station 911+75. Foundation conditions were also visually inspected after excavation and prior to construction of the concrete T-wall and closure structures.

GEOLOGY

3-01 Engineering Characteristics of Overburden Materials. The section at Station 921+80 is the highest section in the vicinity of Section 4A of the levee. The stability analyses for this section were included in Supplement No. 2 to Design Memorandum No. 1 dated October 1974. Data pertinent to this report have been taken from that supplement. Stability analyses were facilitated by the use of a GE 437 electronic computer. Critical circle or wedge configurations were then checked by manual computations. The critical analyses are presented on plates 52 through 55 of Supplement No. 2 to Design Memorandum No. 1. A seismic coefficient of 0.1 was used. Results of the stability analyses are listed in Table 3.3.

3-01.1 Selection of Shear Strengths.

a. Embankment. Shear strength values were the same as those used for Station 433+30 in Section 1. The values were selected by testing material from borings HA-537, HA-243 and HA-609. These three borings are considered to be representative of the borrow areas for the entire project. A summary of the shear strengths is found in Supplement No. 2 to Design Memorandum No. 1, plates 18 through 20. The adopted shear strengths are given in Table 3-1.

TABLE 3-1

ADOPTED SHEAR STRENGTHS FOR THE EMBANKMENT

Test	Tan O	Cohesion (TSF)
Q	0.160	0.95
R	0.283	0.43
S	0.594	0.00

b. Foundation. Two undisturbed borings, UDC 520 and UDC 521, were drilled in the foundation at Pond Creek. The shear strength values used for the foundation were based on the test results from these two borings. The test data from these borings are shown on plates 59 through 92 of Supplement No. 2 to Design Memorandum No. 1. The adopted shear strengths are given in Table 3-2.

TABLE 3-2

ADOPTED SHEAR STRENGTHS FOR THE FOUNDATION

POND CREEK DAM (STATION 921+80)

Test	Tan O	Cohesion (TSF)
Q	0.095	0.20
R	0.374	0.35
S	0.554	0.00

3-01.2 End of Construction. The most critical factor of safety for end of construction with earthquake was 1.13, which was a wedge type failure in the foundation at elevation 387. The 1.13 was above the required 1.0. Without earthquake, the minimum safety factor was 1.76.

3-01.3 Steady Seepage. The most critical factor of safety for steady seepage with earthquake was 1.33, which was a circle type failure tangent to elevation 387. The 1.33 was above the required 1.0. Without earthquake, the minimum safety factor was 2.09.

3-01.4 Sudden Drawdown. The most critical factor of safety for sudden drawdown was 1.79, which was a circle type failure tangent to elevation 337. The 1.79 was well above the required 1.2.

TABLE 3-3

STABILITY ANALYSIS RESULTS

POND CREEK DAM (STATION 921+80)

	Minimum Factor of Safety		Required	
Case	With Earthquake	Without Earthquake	With Earthquake	Without Earthquake
End of Construction	1.13	1.76	1.0	1.3
Steady Seepage	1.33	2.09	1.0	1.5
Sudden Drawdown		1.79		1.2

3-02 T-Wall.

a. General. The T-wall stability analysis and test data are presented in Design Memorandum No. 1 and summarized in Supplement No. 2 to Design Memorandum No. 1. Strength values obtained from tests on soil from boring U-501A and U-502 were used in analyzing the wall. Both structural and sliding stability analyses were done using a GE 225 computer. Program number 41-G1-H201 was used.

b. Structural Stability Analysis. Plate 79 of Design Memorandum No. 1 shows the dimensions and forces used in the manual check of the computer. The calculations are shown on plates 80 through 83 of Design Memorandum No. 1. The resultant from loading number 1 is 0.033 foot in from the quarter point and the resultant from loading number 2 is 0.675 foot in from the one-third point, thus satisfying the conditions for the point of action of resultants set forth in EM 1110-2-2501.

The toe pressure, creep ratio and estimated horizontal movement were also calculated and the calculations are shown on plates 84 and 85 of Design Memorandum No. 1. All of the above items were within the allowable limits established in EM 1110-2-2501.

c. Sliding Stability Analysis. For simplicity of design, a flat failure plane was assumed. The method of analysis is shown in Figure 5-10 of EM 1110-2-2501. In computing the uplift along the failure plane, a straight line assumption was used in lieu of a flow net with full flood head assumed acting at the bottom of the key with the intersection at the failure plane and ground surface being the point of zero potential. This assumption has been proven to be on the conservative side.

The manual calculations made to check the computer results for sliding stability are shown on plates 86 and 87 of Design Memorandum No. 1. The lowest factor of safety obtained for the "Q" case was 5.17 and the lowest factor of safety for the "R" case was 3.01.

Plates 88 and 89 of Design Memorandum No. 1 show the required shearing strength curves obtained by using a factor of safety of 1.0 and 1.5+2c. These curves were based on the test values obtained from holes U-501A and U-502 since no values were available on borrow areas at the time of the analysis. Tests on the borrow areas yielded higher strengths than the values used. Therefore, it was not considered necessary to rerun the analysis since the new values would raise the factor of safety.

EXCAVATION PROCEDURES FOR FOUNDATIONS

4-01 Excavation Grades. The contract plans and specifications call for the levee to be built essentially on existing ground after stripping whatever organic material existed. Very little additional excavation for unsuitable material was necessary. The areas that were undercut occurred at locations where the drainage in the existing ground was poor and a small wet area had built up. These areas were located under the earth embankment portion of the levee.

Plate numbers 4 and 5 show excavation limits along the centerline profile of the project. A typical cross section of the levee is also shown on plate number 4. Typical sections of the 20' T-wall and 22' T-wall are shown on plate number 6.

Plate number 7 shows the profile of the wall and closure structure. The numbering of the wall and closure monoliths on this plate will reference locations of foundation photographs for the wall and closure included in this supplement.

4-02 Method of Excavation. The following paragraphs describe the various methods used to excavate the different features of the work:

4-02.1 Stripping. Stripping excavation involved removal of organic material from beneath the levee embankment limits plus an additional five feet outside the toe. This excavation was done using motorized, rubber-tired scrapers. The average depth of removal was six inches. There were several small areas which had poor drainage and these areas contained up to five feet of very soft, wet material that overlayed more solid material beneath it. These areas were not composed of organic material but instead were of suitable material that would not provide a firm suitable foundation after conventional treatment. These areas were excavated by rubber-tired scrapers assisted by a push tractor. After the unstable material in these areas was removed, then the foundation was treated by conventional equipment in the normal manner. All foundations under the concrete wall, after stripping and excavating to required depths, were determined to be suitable with no additional excavation or undercut required.

4-02.2 Inspection Trench. The contract documents show where the inspection trench was to be excavated. The trench was excavated by rubber-tired scrapers assisted by push tractor. The trench width was excavated to sufficient width to permit dozers and rollers to work in them to recompact the material after the subsurface ground conditions were inspected.

4-03 Foundation Preparation. The earth embankments for this section of the project were founded on essentially the same type of foundation material throughout the entire length. Accordingly, the foundation preparation procedures were basically consistent for all reaches of the earth levee. The preparation consisted of thoroughly breaking the foundation to a depth of six inches using scarifying teeth on a grader, bringing the insitu material to the proper moisture content and recompacting the material with four passes of an approved roller. After this operation was performed to the satisfaction of the Government, embankment placement proceeded in accordance with the contract requirements. In those reaches where the concrete wall was constructed, the foundation required no extra or unusual treatment; in all reaches, the foundation was excavated to the lines and grades specified, the foundation was inspected and placement of concrete proceeded.

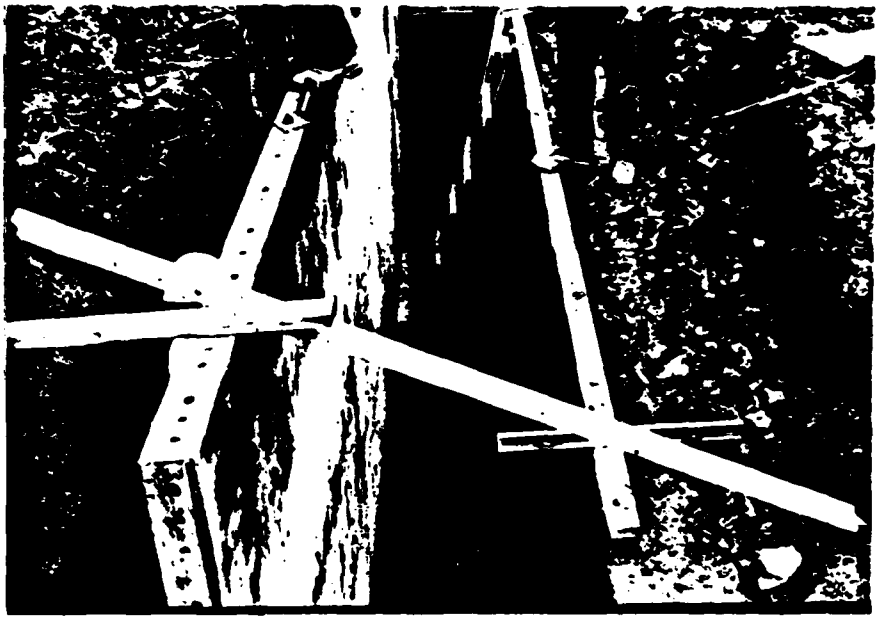
4-04 Deviations From Planned Conditions. Only one area was uncovered that revealed conditions differing from what was anticipated by the plans. In June 1981 while excavating the inspection trench, a network of clay field tile was encountered between centerline stations 903+20 and 909+40. The clay tiles were approximately 2.5 feet below original ground. This was an area where some residences were previously located and the tiles were probably either a subsurface drainage net or lateral lines from septic disposal systems or a combination thereof. All drainage tiles encountered were removed entirely to their termination point or to five feet outside the toe of the levee. Below is a tabulation of the tiles encountered and the lengths removed from under the levee foundation outside the limits of the inspection trench.

908+67 Rt	S/W	100 feet
908+50 Lt	N/E	78 feet
908+60 Rt	N/W	35 feet
908+00 Rt	N/W	40 feet
908+40 Lt	S/E	20 feet
909+40 Lt	S/E	10 feet
907+50 Lt	S/E	75 feet
909+60 Lt	S/E	100 feet
905+75 Lt	N/E	20 feet
905+60 Lt	S/E	60 feet
904+60 Lt	S/E	45 feet
904+50 Rt	N/W	45 feet
903+20 Rt	N/W	100 feet

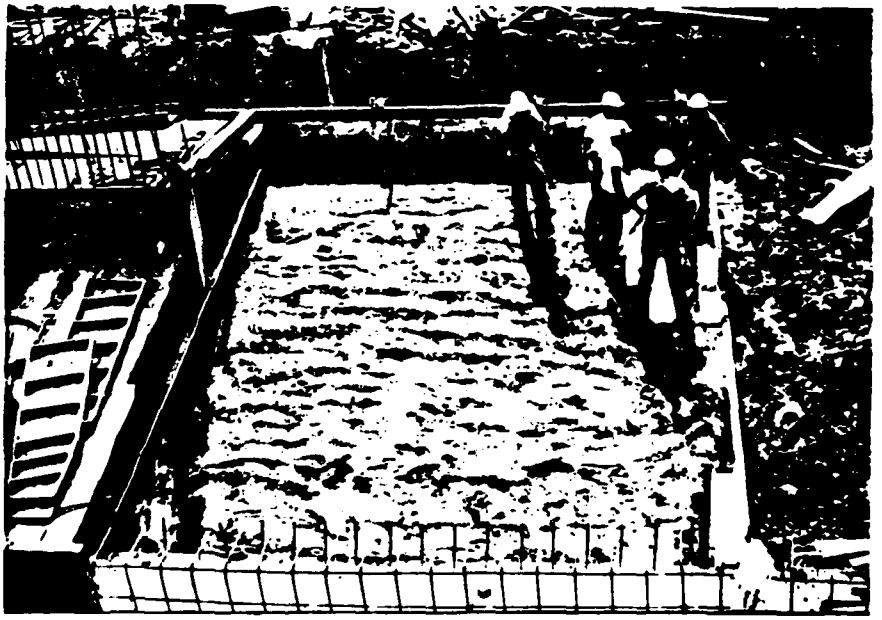
POSSIBLE FUTURE PROBLEMS

5-01 Conditions That Could Produce Problems. There were no founding conditions encountered that are anticipated to produce future problems. The only conditions that deviated from planned conditions were discussed in paragraph 4-04. Those conditions discussed in paragraph 4-04 were corrected by entirely removing the tile encountered from the foundation beneath the levee and they are not anticipated to produce any future problems.

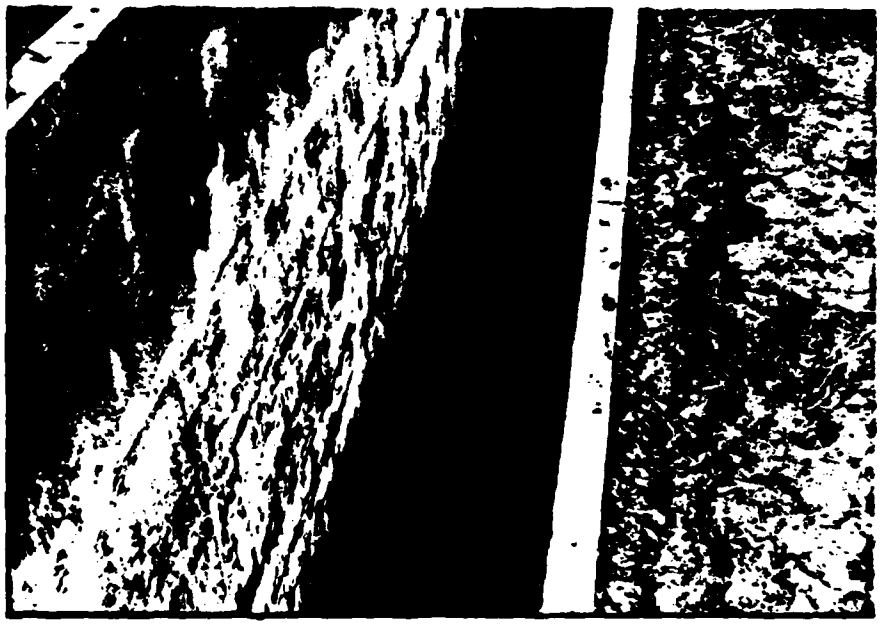
5-02 Recommended Observations. Observations should be made immediately after flood situations where water has been against the levee for indications of sliding.



FOOTER SEC. T-6



SLAB SEC. T-6

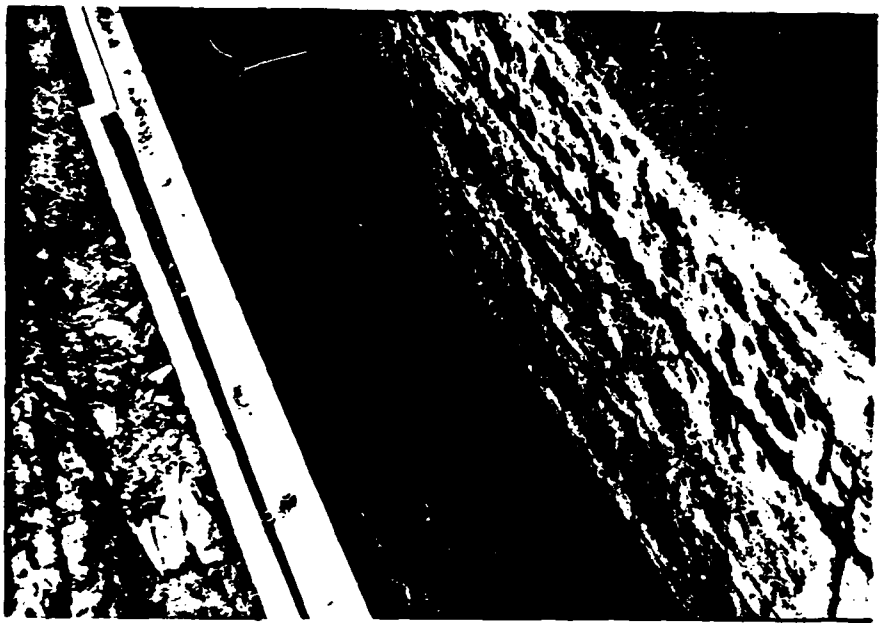


FOOTER SEC. T-5

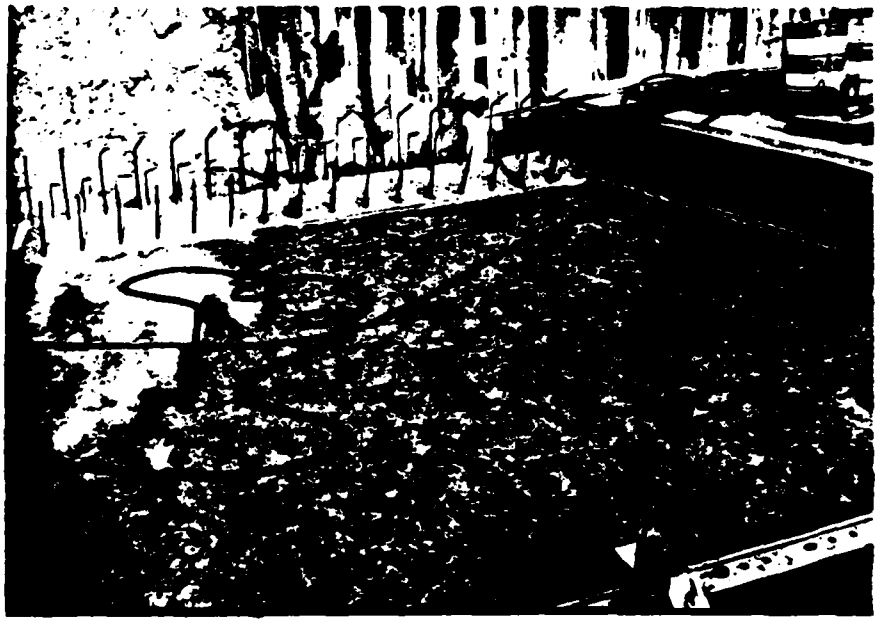
SLAB SEC. T-5

CLOSURE FOOTER C-1A

CLOSURE SLAB C-1A



FOOTER SEC. T-2



SLAB SEC. T-2

STA 874+15 LT.

INSPECTION TRENCH STA 874+15

STA 875+00 LT

INSPECTION TRENCH STA 875+00

STA 876+00 LT.

INSPECTION TRENCH STA 876+00

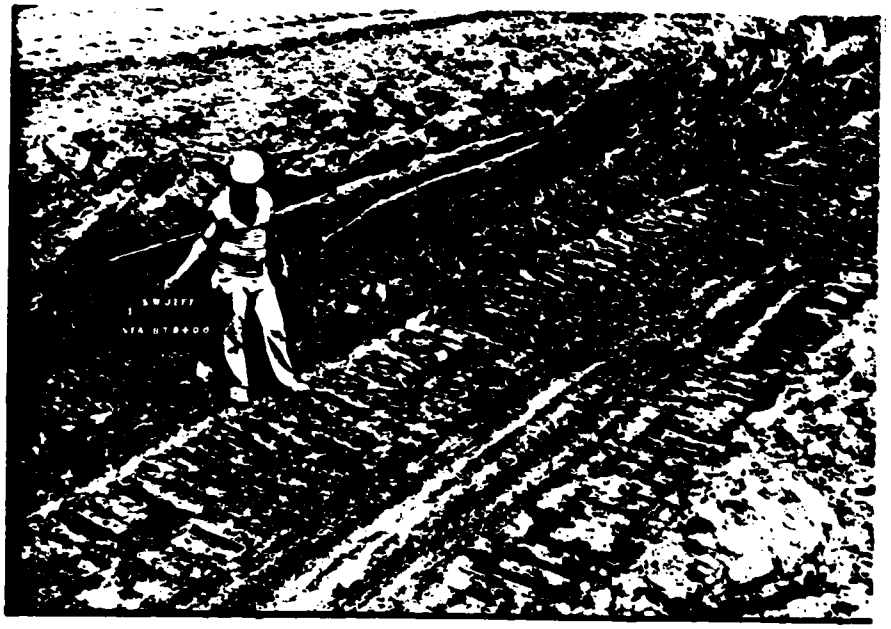
STA 877+00 LT.

INSPECTION TRENCH STA 877+00

STA 878+00 RT.

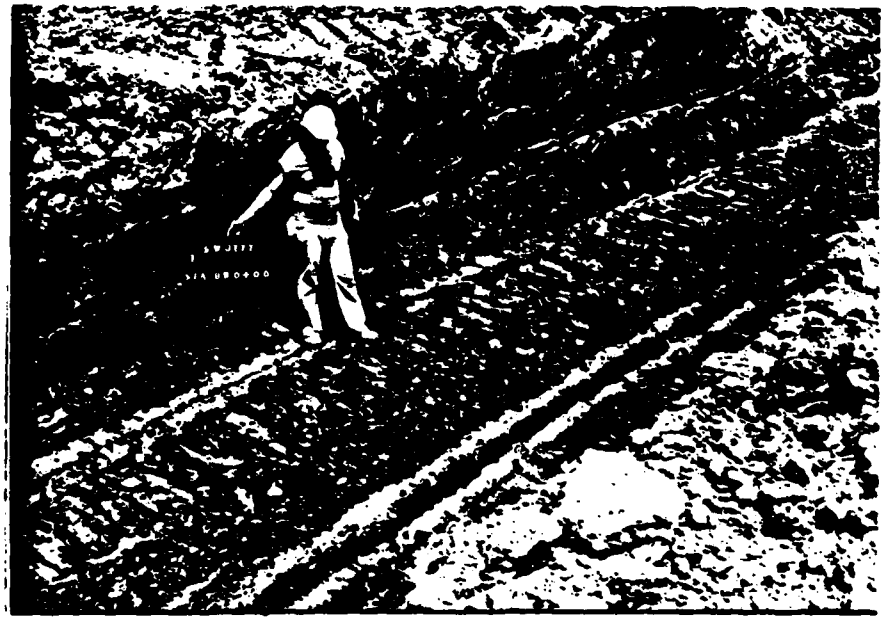
INSPECTION TRENCH STA 878+00

STA 879+00 LT.



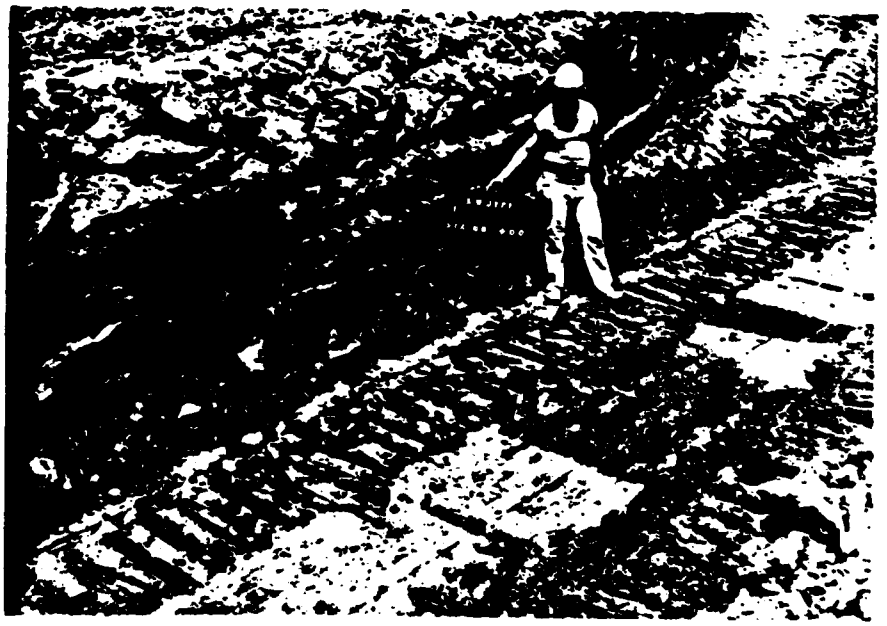
INSPECTION TRENCH STA 879+00

STA 880+00 RT.



INSPECTION TRENCH STA 880+00

STA 881+00 LT.

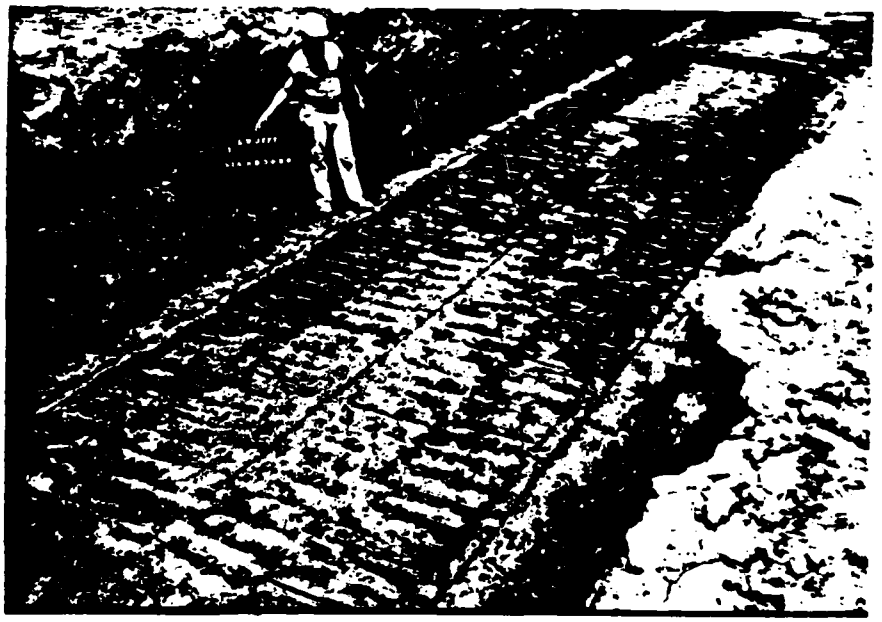


INSPECTION TRENCH STA 881+00

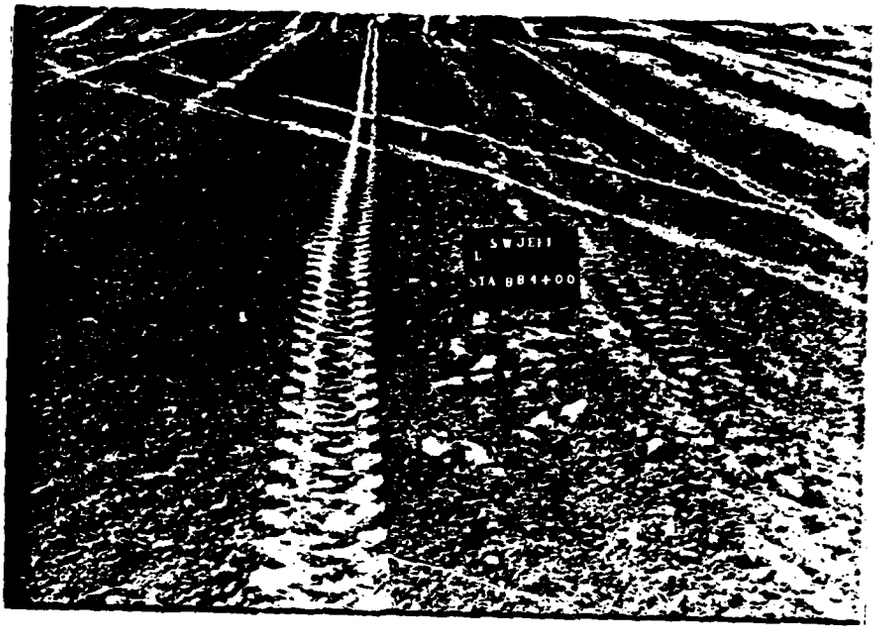
STA 882+00 LT.

INSPECTION TRENCH STA 882+00

STA 883+00 LT.



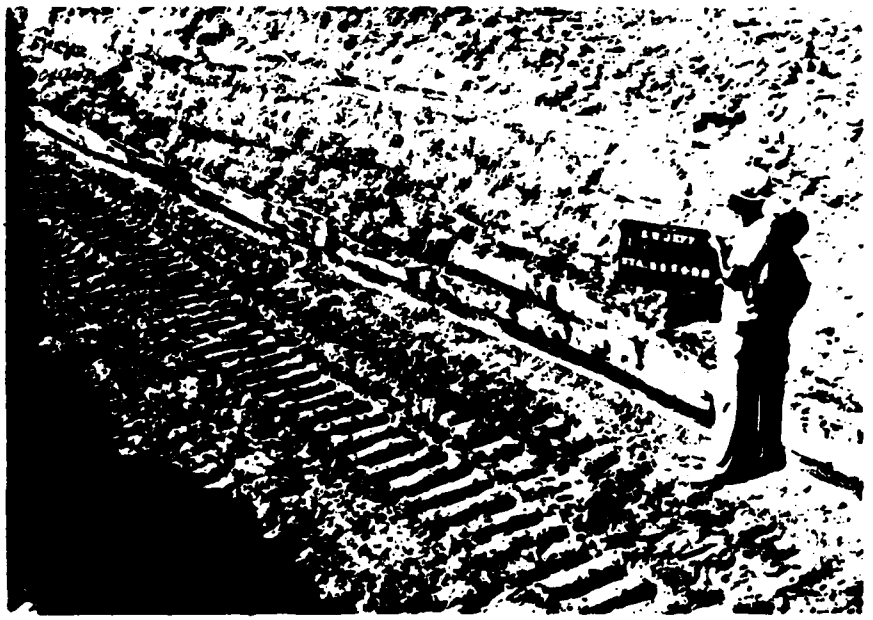
INSPECTION TRENCH STA 883+00



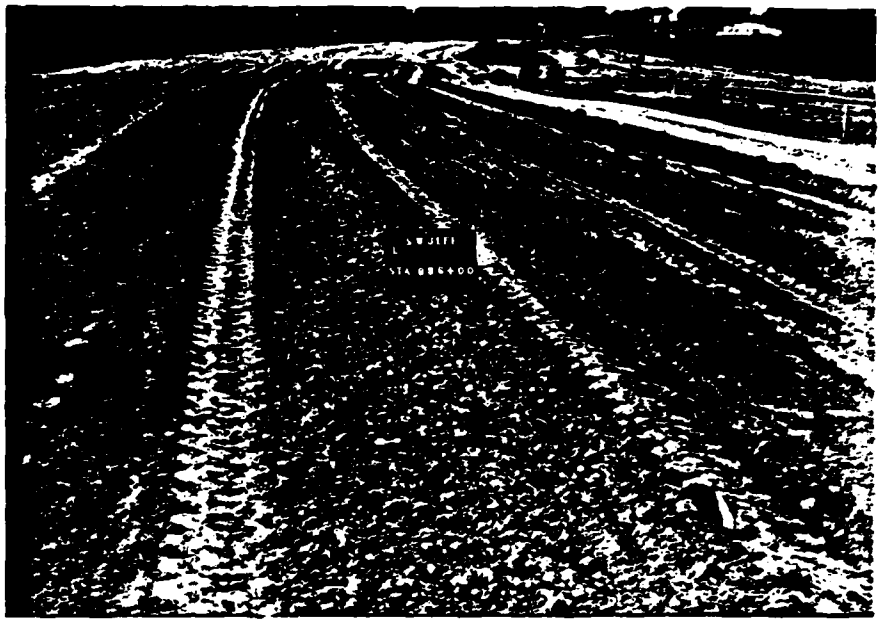
STA 884+00 LT.

INSPECTION TRENCH STA 884+00

STA 885+00 LT.



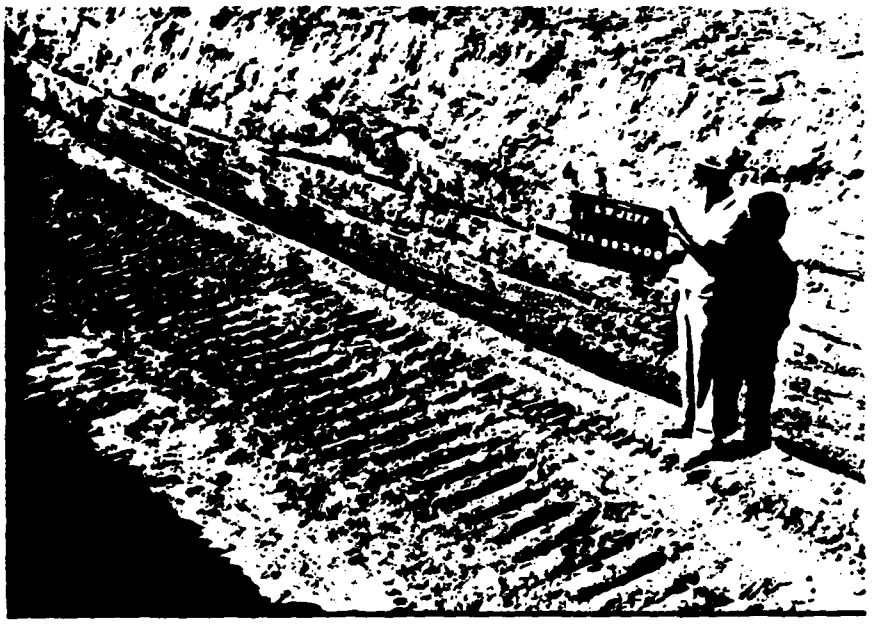
INSPECTION TRENCH STA 885+00



STA 886+00 LT.

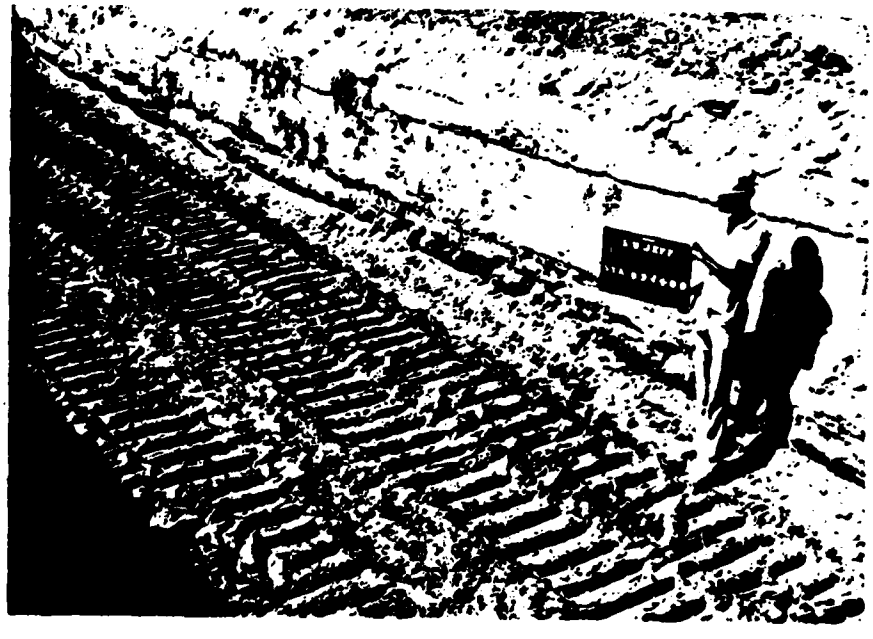
INSPECTION TRENCH STA 886+00

STA 893+00 RT.



INSPECTION TRENCH STA 893+00

STA 894+00 RT.



INSPECTION TRENCH STA 894+00

STA 895+00 RT.

INSPECTION TRENCH STA 895+00

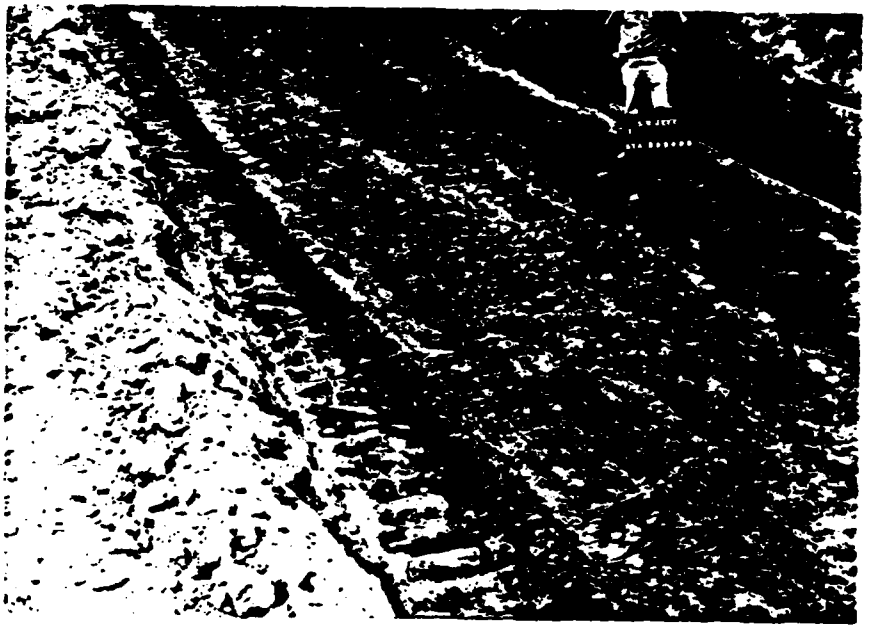
STA 896+00 RT.

INSPECTION TRENCH STA 896+00

STA 897+00 RT.

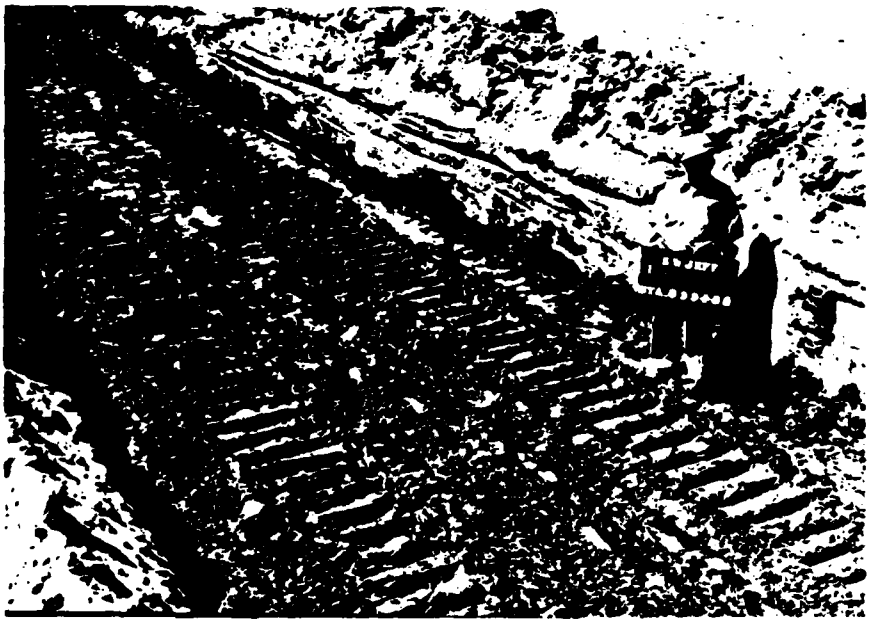
INSPECTION TRENCH STA 897+00

STA 898+00 LT.



INSPECTION TRENCH STA 898+00

STA 899+00 LT.

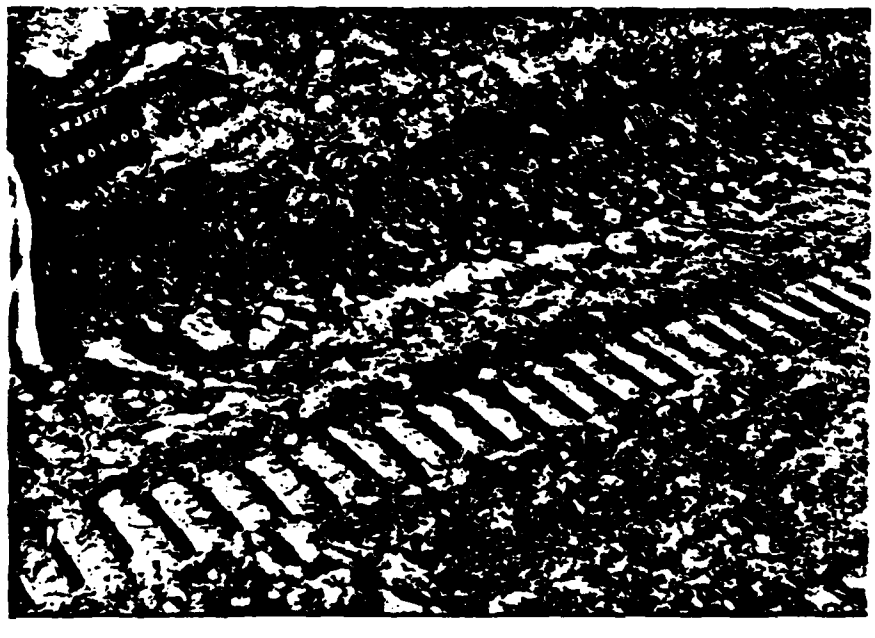


INSPECTION TRENCH STA 899+00

STA 900+00 LT.

INSPECTION TRENCH STA 900+00

STA 901+00 RT.

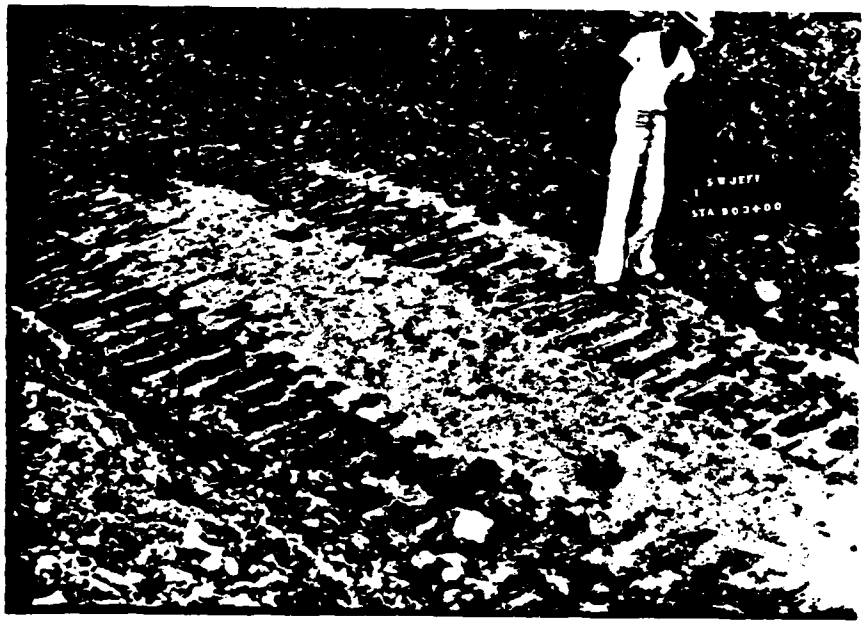


INSPECTION TRENCH STA 901+00

STA 902+00 LT.

INSPECTION TRENCH STA 902+00

STA 903+00 LT.



INSPECTION TRENCH STA 903+00

STA 904+00 LT.

INSPECTION TRENCH STA 904+00

STA 905+00 LT.

INSPECTION TRENCH STA 905+00

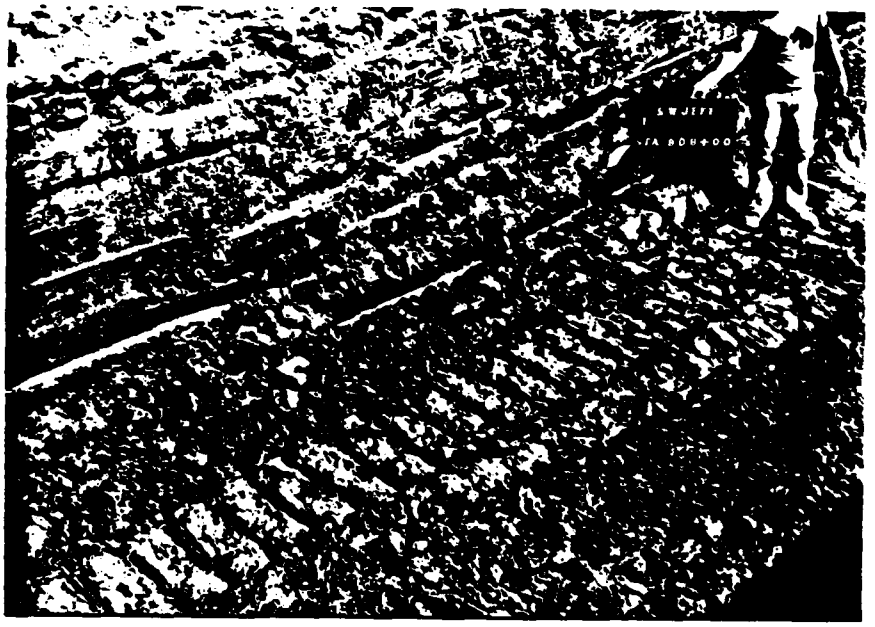
STA 906+00 LT.

INSPECTION TRENCH STA 906+00

STA 907+00 RT.

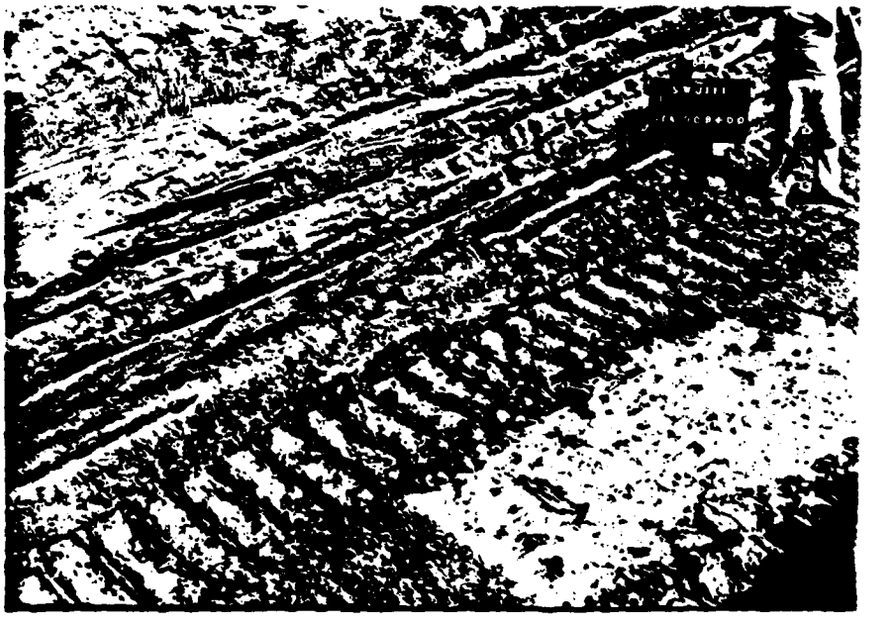
INSPECTION TRENCH STA 907+00

STA 908+00 LT.



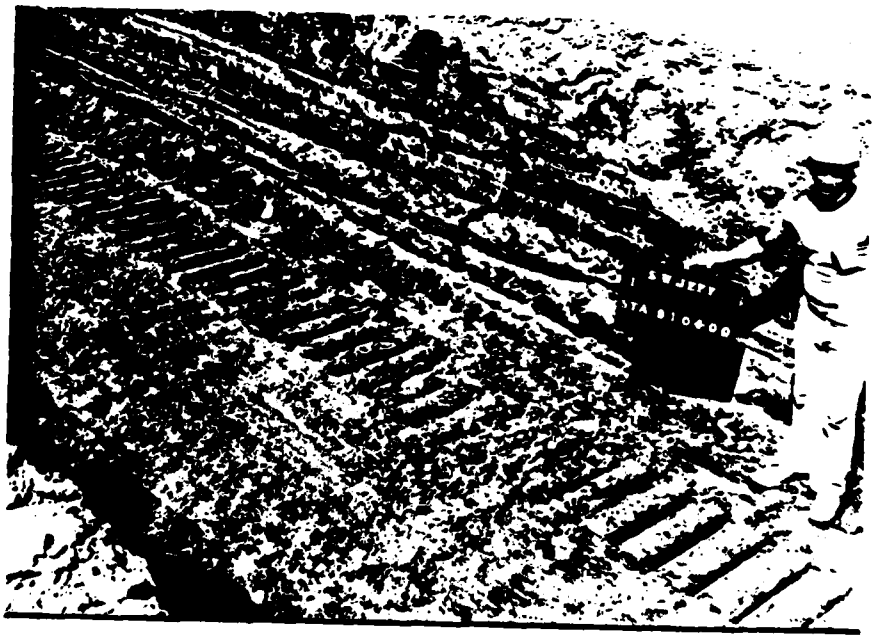
INSPECTION TRENCH STA 908+00

STA 909+00 RT.

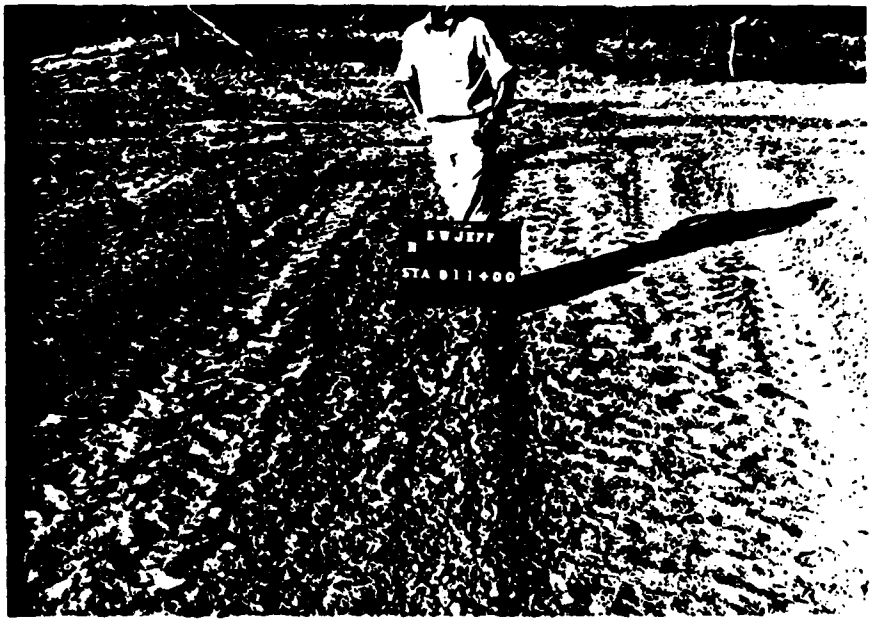


INSPECTION TRENCH STA 909+00

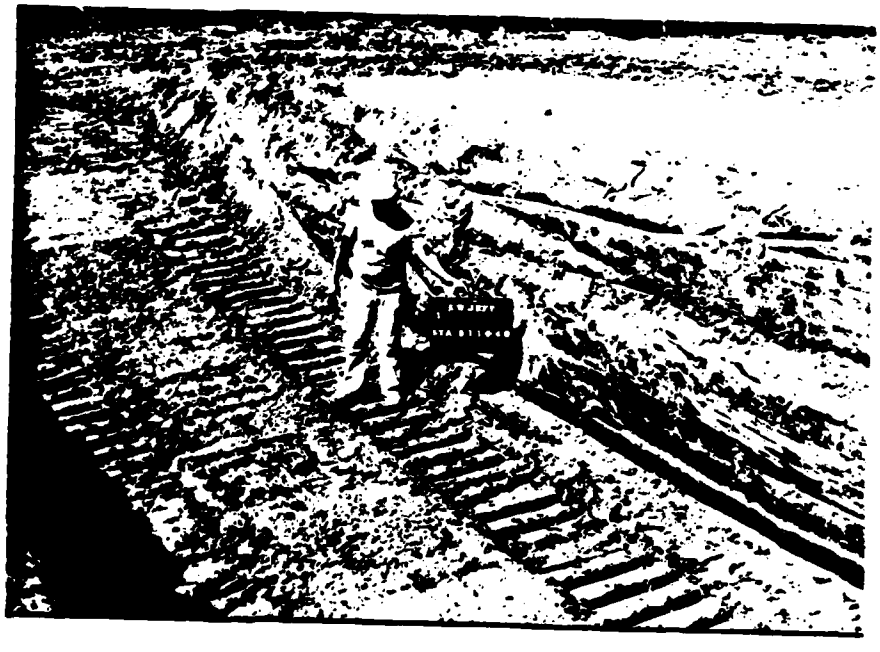
STA 910+00 RT.



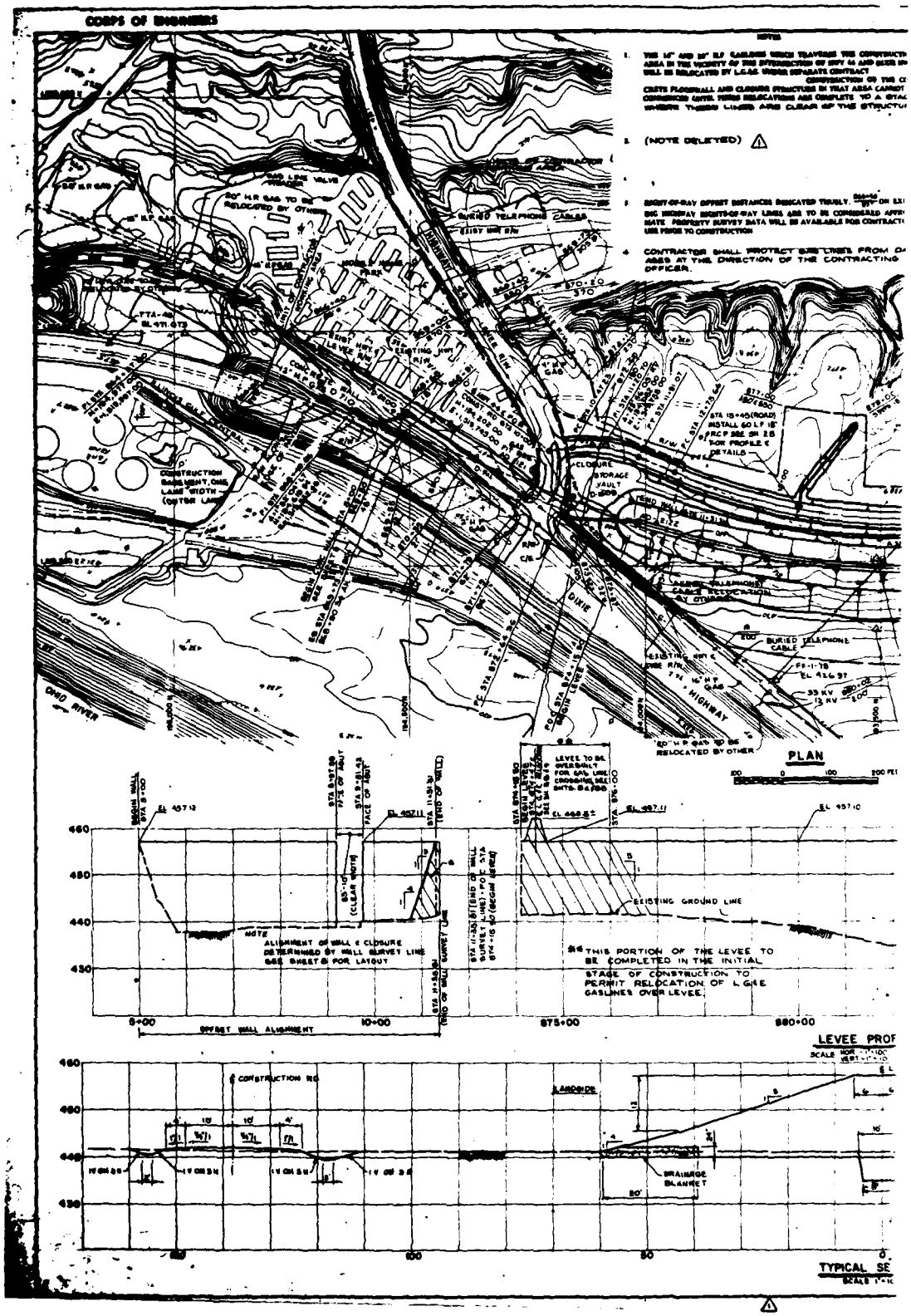
INSPECTION TRENCH STA 910+00



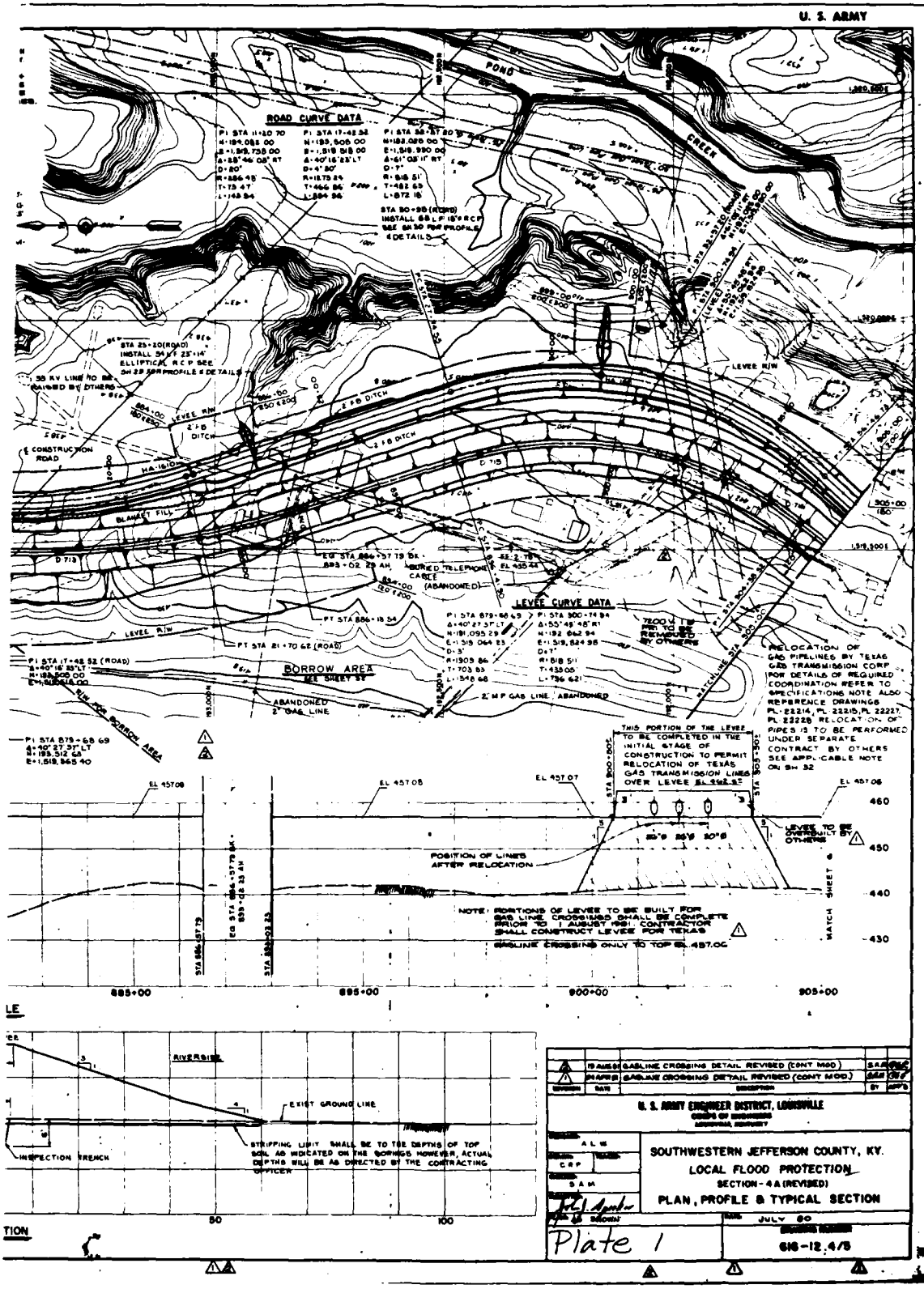
STA 911+00 RT.



INSPECTION TRENCH STA 911+50


CORPS OF ENGINEERS
NOTES
1. THE 14" AND 20" ELP GASLINES WHICH TRAVERSE THE CONSTRUCTE
AREA IN THE VICINITY OF THE INTERSECTION OF SR'Y 44 AND SR32 IN
WILL BE RELOCATED BY L.G.&E. UNDER SEPARATE CONTRACT.
CONSTRUCTION OF THE C
COSTS FLOODWALL AND CLOSURE STRUCTURE IN THAT AREA CANNOT
COMMENCED UNTIL THESE RELOCATIONS ARE COMPLETE TO A STAG
WHERE THESE LINES ARE CLEAR OF THE STRUCTU
2. (NOTE DELETED)
3. RIGHT-OF-WAY OFFSET DISTANCES INDICATED THUSLY, ON SR
BIG MUDDY RIGHTS-OF-WAY LINES ARE TO BE CONSIDERED APPR
MATE PROPERTY SURVEY DATA WILL BE AVAILABLE FOR CONTRACTI
USE PRIOR TO CONSTRUCTION
4. CONTRACTOR SHALL PROTECT GAS LINES FROM D
AREA AT THE DIRECTION OF THE CONTRACTING
OFFICER.
OHIO RIVER
DIXIE HIGHWAY
BURIED TELEPHONE CABLE
CLOSURE STORAGE VAULT
PLAN
EL 457.12
EL 457.11
EL 457.10
EXISTING GROUND LINE
NOTE
ALIGNMENT OF WALL & CLOSURE DETERMINED BY WALL SURVEY LINE SEE SHEET 8 FOR LAYOUT
THIS PORTION OF THE LEVEE TO BE COMPLETED IN THE INITIAL STAGE OF CONSTRUCTION TO PERMIT RELOCATION OF L G&E GASLINES OVER LEVEE.
OFFSET WALL ALIGNMENT
LEVEE PROF
TYPICAL SE

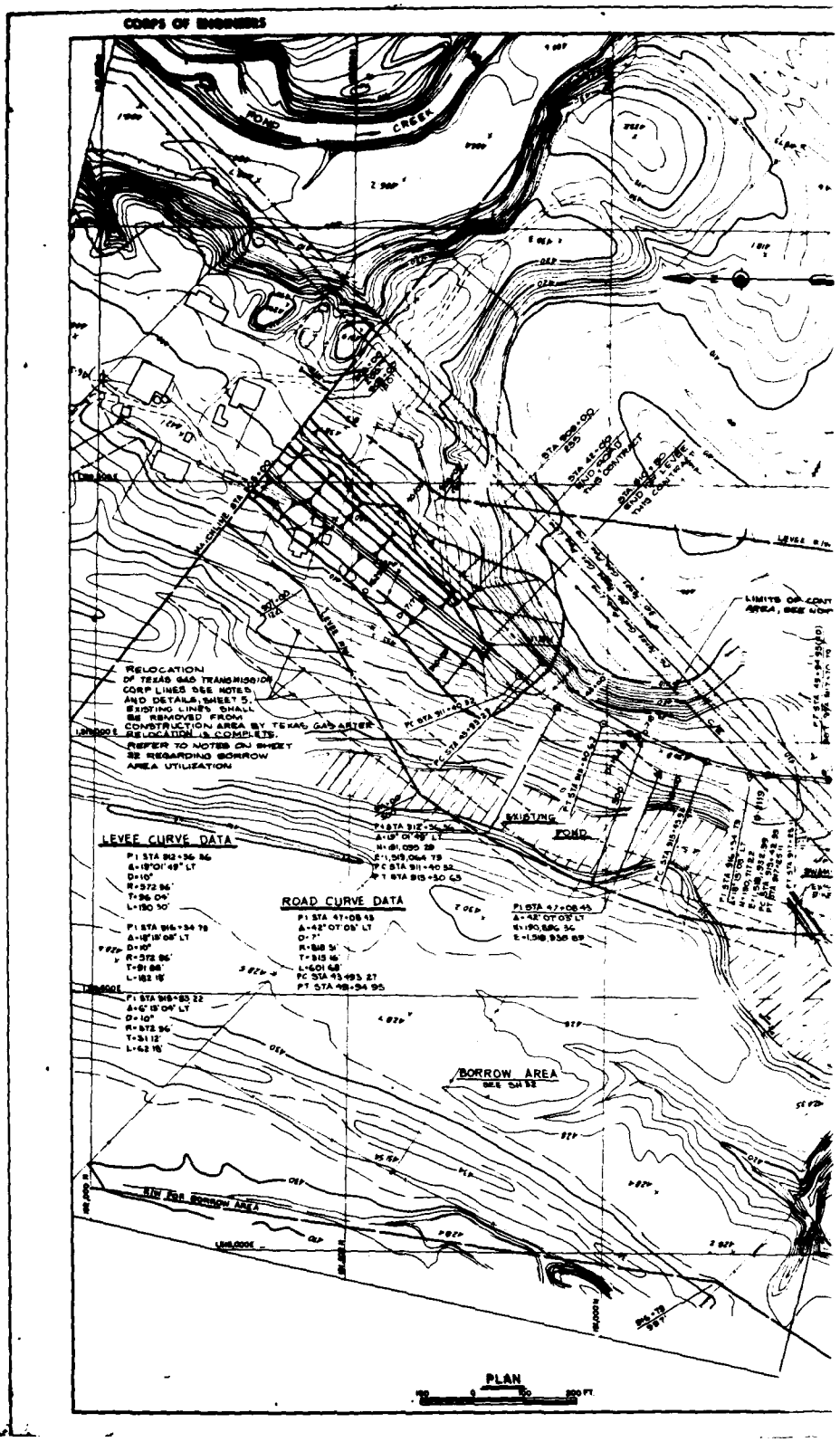
U. S. ARMY

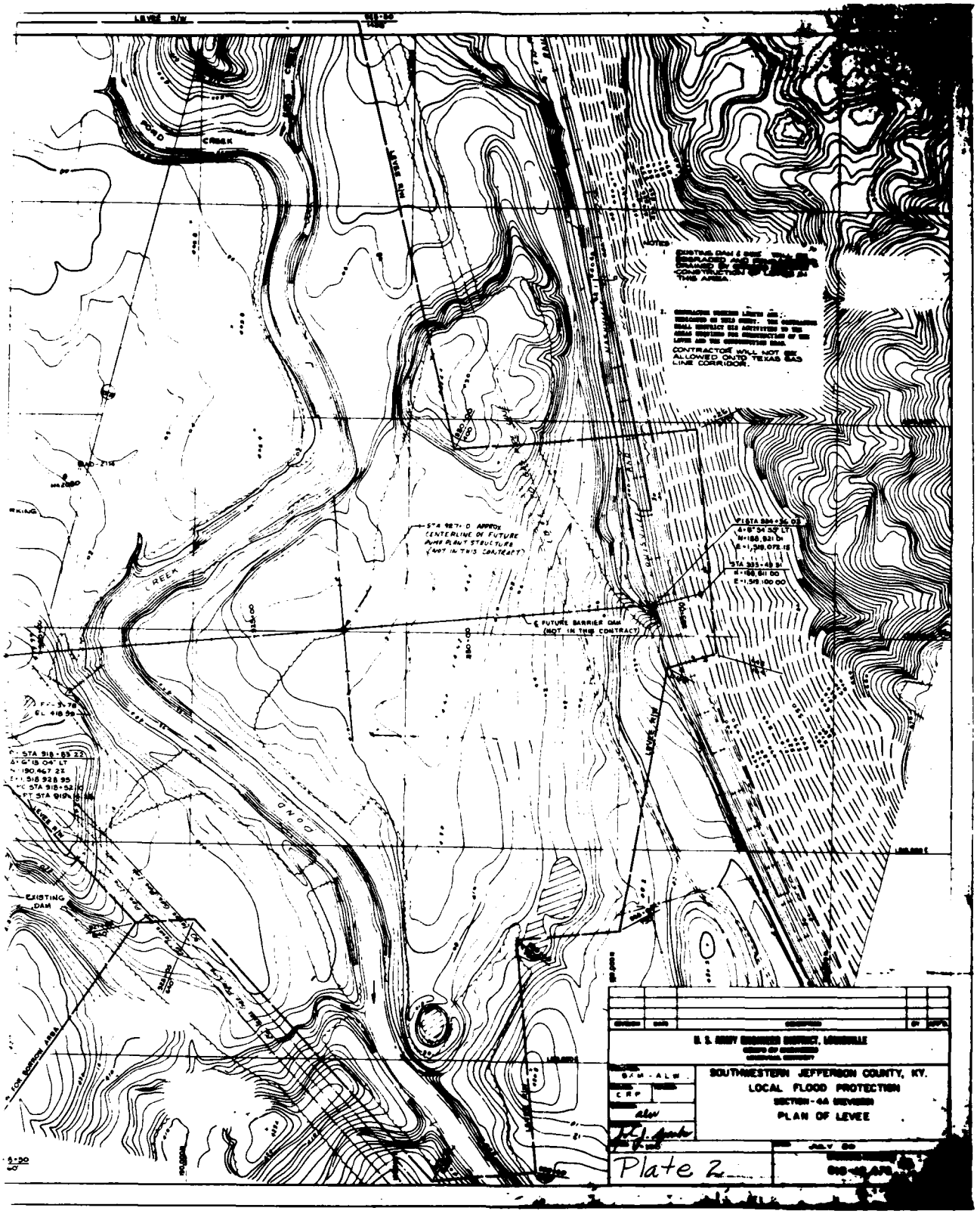


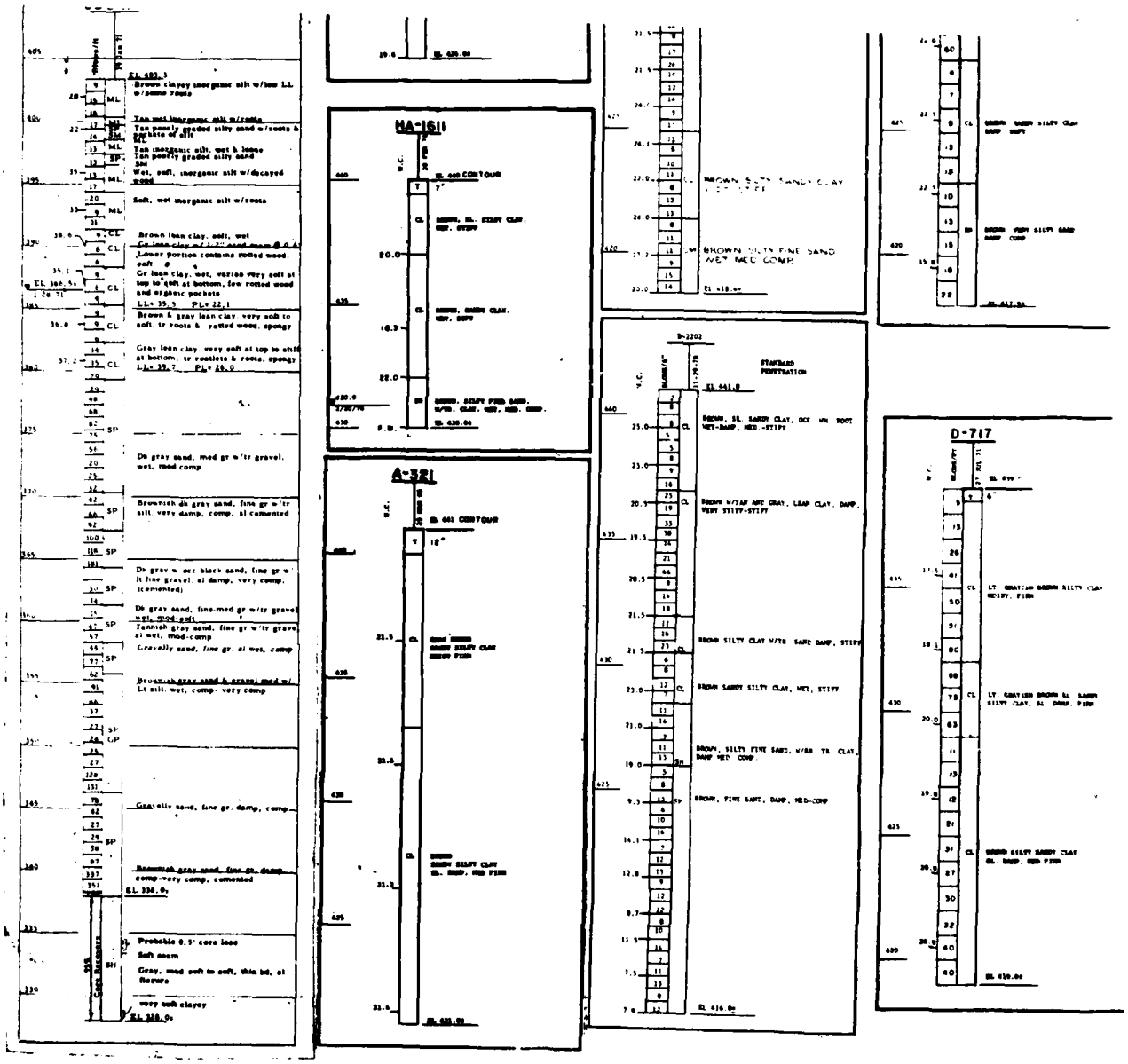
2	19 AUG 60	GASLINE CROSSING DETAIL REVISED (CONT MOD)	SA RWC
1	24 AUG 60	GASLINE CROSSING DETAIL REVISED (CONT MOD)	SAM CRP
REVISION	DATE	DESCRIPTION	BY APP'D

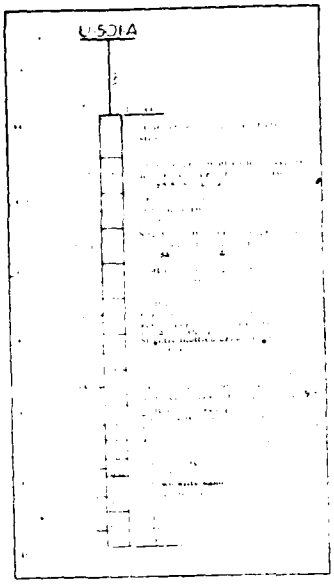
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

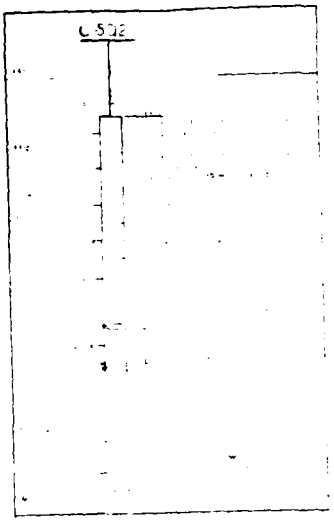
DESIGNED A L W	SOUTHWESTERN JEFFERSON COUNTY, KY.
DRAWN C R P	LOCAL FLOOD PROTECTION
TRACED S A M	SECTION - 4 A (REVISED)
CHIEF, ENGINEERING DIVISION J. L. Spencer	PLAN, PROFILE & TYPICAL SECTION
SUBMITTED BROWN	DATE JULY 60
Plate 1	616-12.4/5

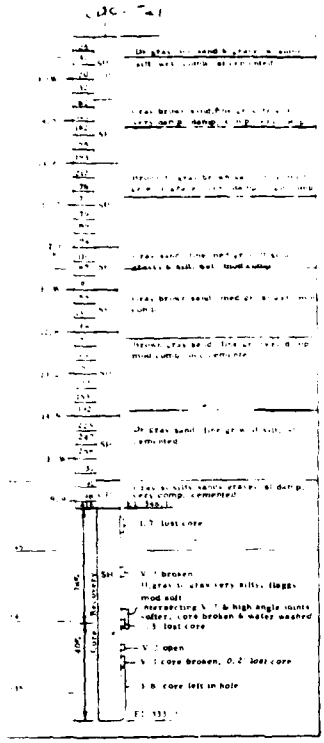

CORPS OF ENGINEERS
POND CREEK
RELOCATION
OF TEXAS GAS TRANSMISSION
CORP LINES SEE NOTES
AND DETAILS SHEET 5.
EXISTING LINES SHALL
BE REMOVED FROM
CONSTRUCTION AREA BY TEXAS GAS AFTER
RELOCATION IS COMPLETE.
REFER TO NOTES ON SHEET
32 REGARDING BORROW
AREA UTILIZATION
LEVEE CURVE DATA
ROAD CURVE DATA
EXISTING
POND
BORROW AREA
SEE SH 32
PLAN

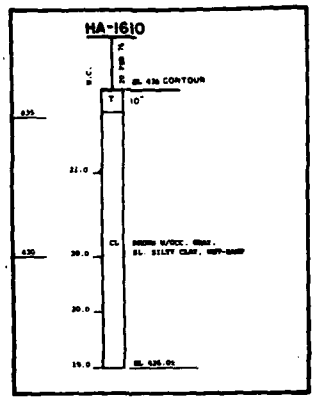

LEVEE R/W
FORD CREEK
LEVEE R/W
NOTES
CONTRACTOR WILL NOT BE ALLOWED ONTO TEXAS GAS LINE CORRIDOR.
STA 927+00 APPROX (CENTERLINE OF FUTURE PUMP PLANT STRUCTURE (NOT IN THIS CONTRACT)
CREEK
℄ FUTURE BARRIER DAM (NOT IN THIS CONTRACT)
LEVEE R/W
EXISTING DAM
LEVEE R/W
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
SOUTHWESTERN JEFFERSON COUNTY, KY.
LOCAL FLOOD PROTECTION
SECTION - 4A REVISED
PLAN OF LEVEE
Plate 2

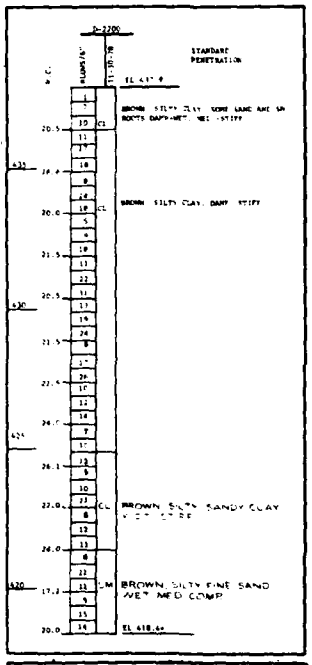

HA-1611
A-321
D-2202
D-717
STANDARD PENETRATION
Brown clayey inorganic silt w/low L.L. w/some roots
Tan wet inorganic silt w/roots
Tan poorly graded silty sand w/roots & streaks of silt
Tan inorganic silt, wet & loose
Tan poorly graded silty sand
Wet, soft, inorganic silt w/decayed wood
Soft, wet inorganic silt w/roots
Brown lean clay, soft, wet
Gr lean clay w/1-2" sand seam @ 6.0
Lower portion contains rotted wood, soft @
Gr lean clay, wet, varies very soft at top to soft at bottom, few rotted wood and organic pockets
Brown & gray lean clay very soft to soft, tr roots & rotted wood, spongy
Gray lean clay, very soft at top to stiff at bottom, tr rootlets & roots, spongy
Dk gray sand, med gr w/tr gravel, wet, med comp
Brownish dk gray sand, fine gr w/tr silt, very damp, comp, sl cemented
Dk grey w occ black sand, fine gr w/tr fine gravel, sl damp, very comp, (cemented)
Dk gray sand, fine-med gr w/tr gravel wet, med-soft
Tannish gray sand, fine gr w/tr gravel sl wet, med-comp
Gravelly sand, fine gr, sl wet, comp
Brownish gray sand & gravel, med w/ Lt silt, wet, comp- very comp
Gravelly sand, fine gr, damp, comp
Brownish gray sand, fine gr, damp comp-very comp, cemented
EL 358.0+
Probable 0.5' core loss
Soft seam
Gray, med soft to soft, thin bd, sl flexure
very soft clayey
EL 328.0+
Core Barrel
BROWN SILTY FINE SAND WET MED COMP
BROWN, SL. SANDY CLAY, OCC VN ROOT WET-DAMP, MED.-STIFF
BROWN W/TAN AND GRAY, LEAN CLAY, DAMP, VERY STIFF-STIFF
BROWN SILTY CLAY W/TR SAND DAMP, STIFF
BROWN SANDY SILTY CLAY, WET, STIFF
BROWN, SILTY FINE SAND, W/SM TR CLAY, DAMP WET COMP
BROWN, FINE SAND, DAMP, MED-COMP

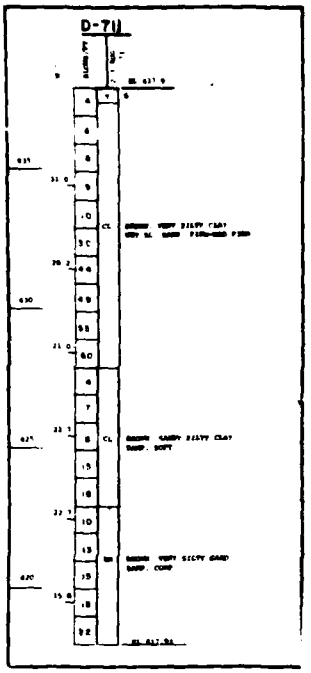

U-501A

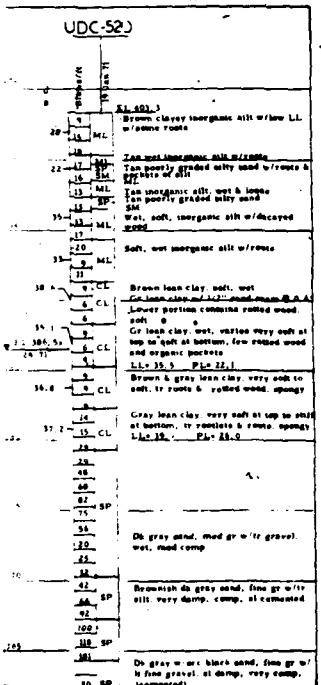

U-502

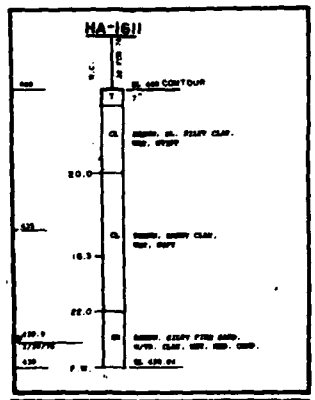


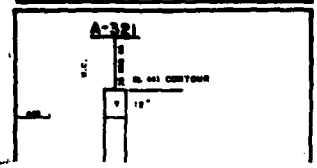

HA-1610
EL. 635 CONTOUR
10"
635
22.0
630
30.0
CL
BROWN M/DOC. GRAV.,
SL. SILTY CLAY, WET-SAND
30.0
19.0
EL. 626.0±

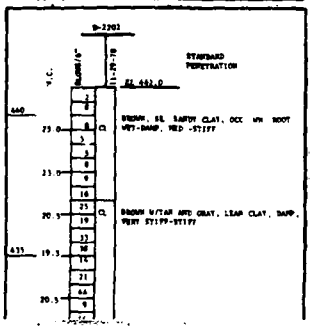

D-2200
STANDARD
PENETRATION
EL 637.9
BROWN SILTY CLAY, VERY LOOSE AND SA
ROOTS DAMP-WET, WET -STIFF
635
20.5
CL
BROWN SILTY CLAY, DAMP STIFF
630
22.0
CL
BROWN, SILTY SANDY CLAY
625
26.0
SM
BROWN, SILTY FINE SAND
WET MED COMP
620
20.0
EL 618.4±

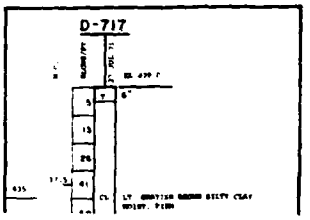

D-711
EL 637.9
635
630
625
620
CL
BROWN, VERY SILTY CLAY
SAND, SOFT
SM
BROWN, VERY SILTY SAND
SAND, COMP

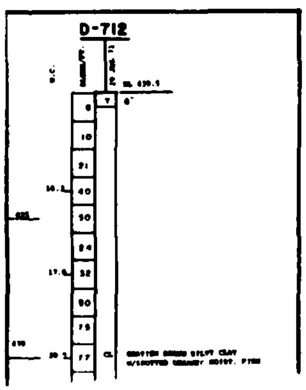

UDC-523
EL 403.3
Brown clayey inorganic silt w/low LL
w/some roots
Tan wet inorganic silt w/roots
Tan poorly graded silty sand w/roots &
traces of silt
Tan inorganic silt, wet & loose
Tan poorly graded silty sand
SM
Wet, soft, inorganic silt w/decayed
wood
Soft, wet inorganic silt w/roots
Brown lean clay, soft, wet
Gr lean clay, wet, various very soft at
top to soft at bottom, few rotted wood
and organic pockets
LL= 35.5 PI= 22.1
Brown & grey lean clay, very soft to
soft, tr roots & rotted wood, spongy
Gray lean clay, very soft at top to stiff
at bottom, tr roots & roots, spongy
LL= 35.1 PI= 20.0
Dk gray sand, med gr w/tr gravel,
wet, med comp
Brownish dk gray sand, fine gr w/tr
silt, very damp, comp, sl cemented
Dk gray w/ occ black sand, fine gr w/
tr fine gravel, sl damp, very comp,
(cemented)

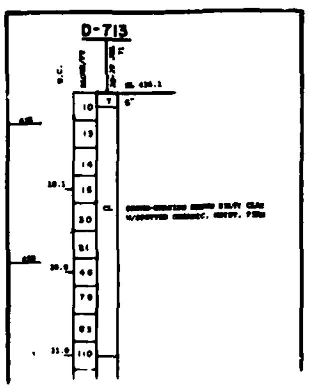

HA-1611
EL 635 CONTOUR
7"
635
CL
BROWN, SL. SILTY CLAY,
WET, SOFT
20.0
630
CL
BROWN, SANDY CLAY,
WET, SOFT
18.3
625
22.0
SM
BROWN, SILTY FINE SAND,
W/TR. CLAY, WET, MED. COMP.
620
EL 620.0±

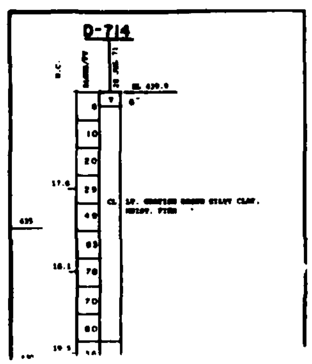

A-321
EL 601 CONTOUR
19"

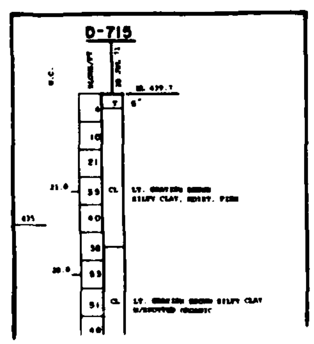

D-2203
STANDARD
PENETRATION
EL 642.0
640
25.0
CL
BROWN, SL SANDY CLAY, OCC VN ROOT
WET-DAMP, MED -STIFF
635
23.0
CL
BROWN W/TAN AND GRAY, LEAN CLAY, DAMP,
VERY STIFF-STIFF
630
20.5
19.5
20.5

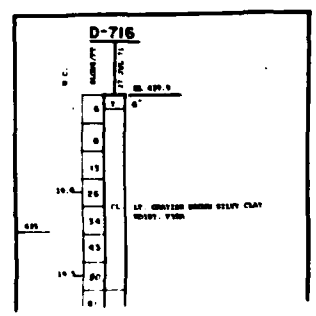

D-717
EL 639.7
635
CL
LT. BROWISH BROWN SILTY CLAY
WITH. PEBB

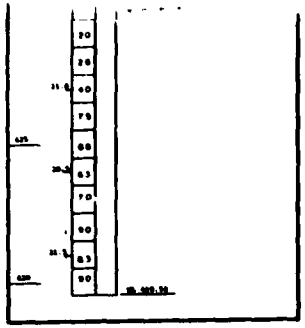

D-712

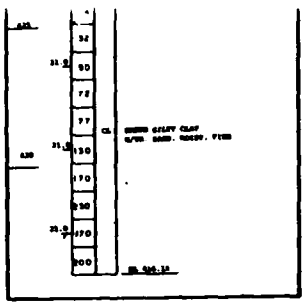

D-713

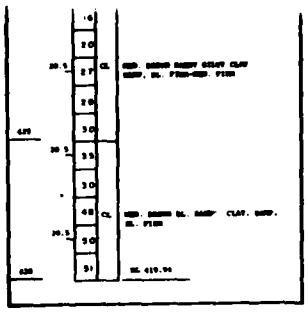

D-714

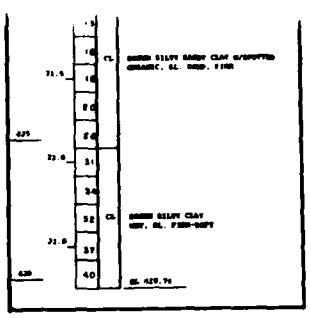

D-715

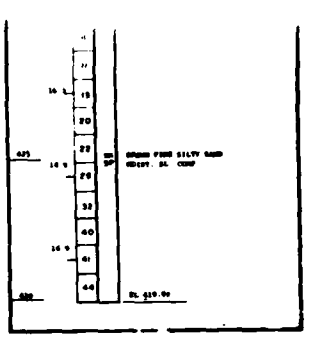

D-716

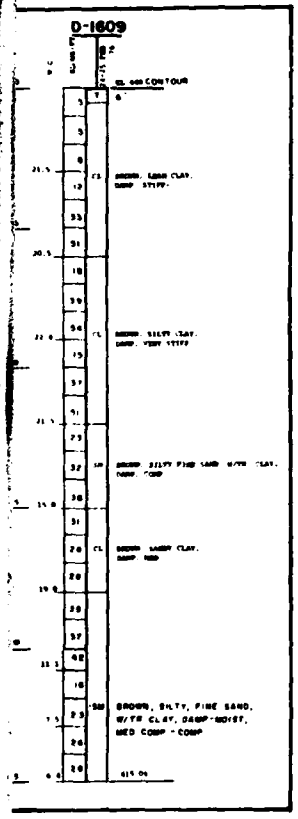


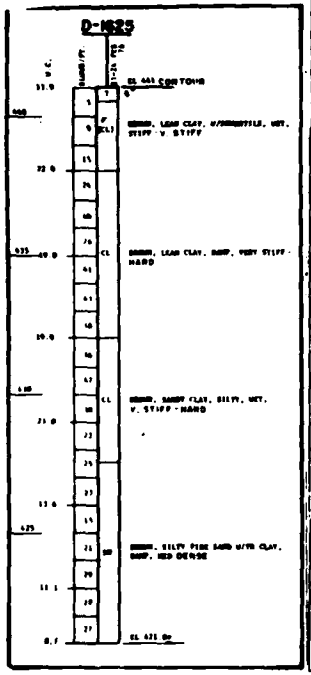


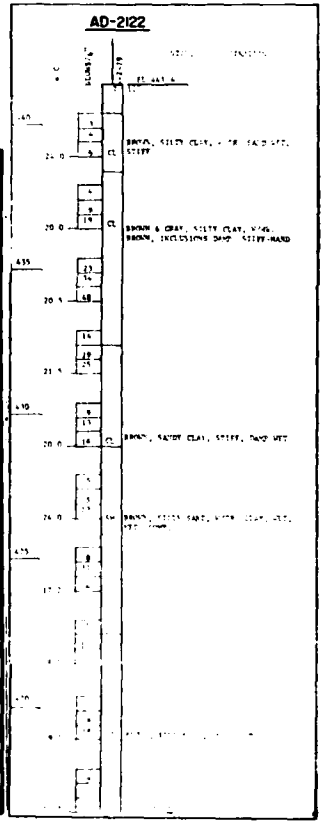


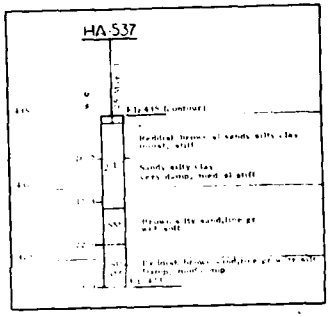


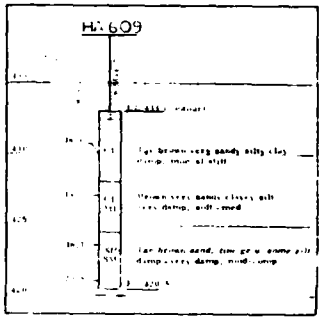












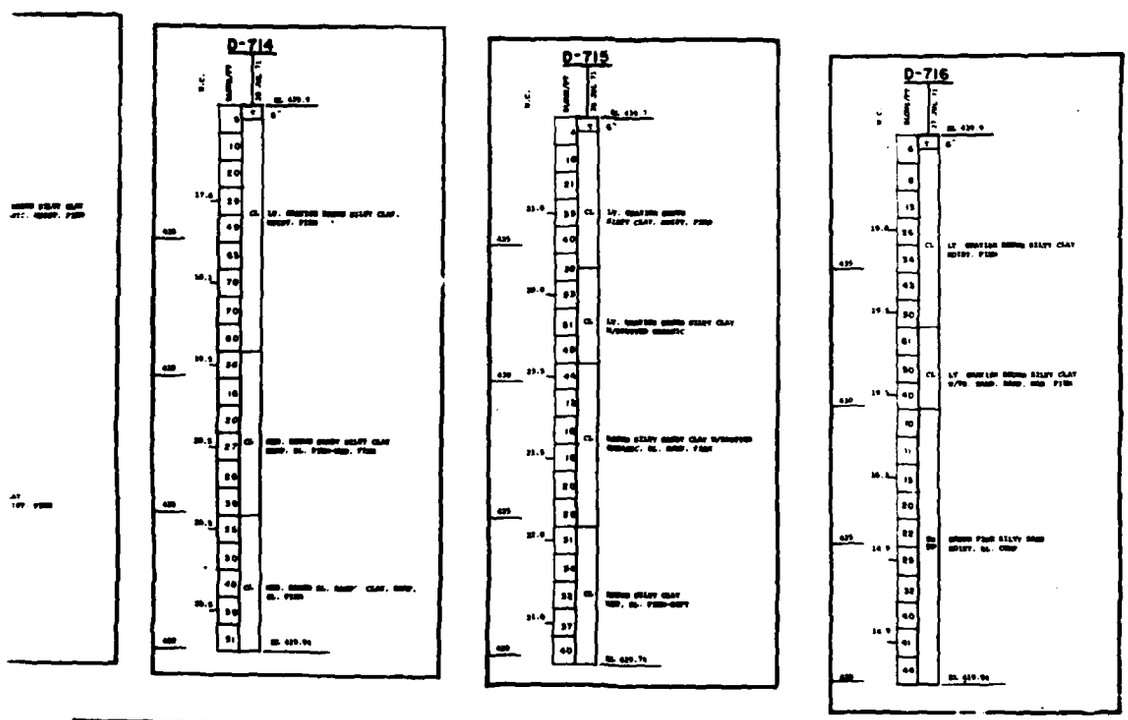
REVISION	DATE	DESCRIPTION	BY

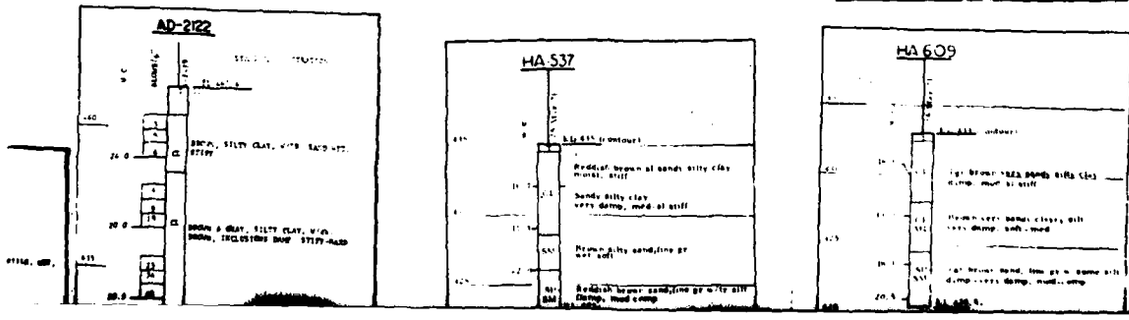
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS LOUISVILLE, KENTUCKY

DESIGNED:
DRAWN: TRACED:
CHECKED:
SUBMITTED:
APPROVAL REC:
APPROVED:
APPROVED:

SOUTHWEST JEFFERSON CO. KY., LOCAL FLOOD PROTECTION SECTION 4A BORING LOGS

PLATE 3

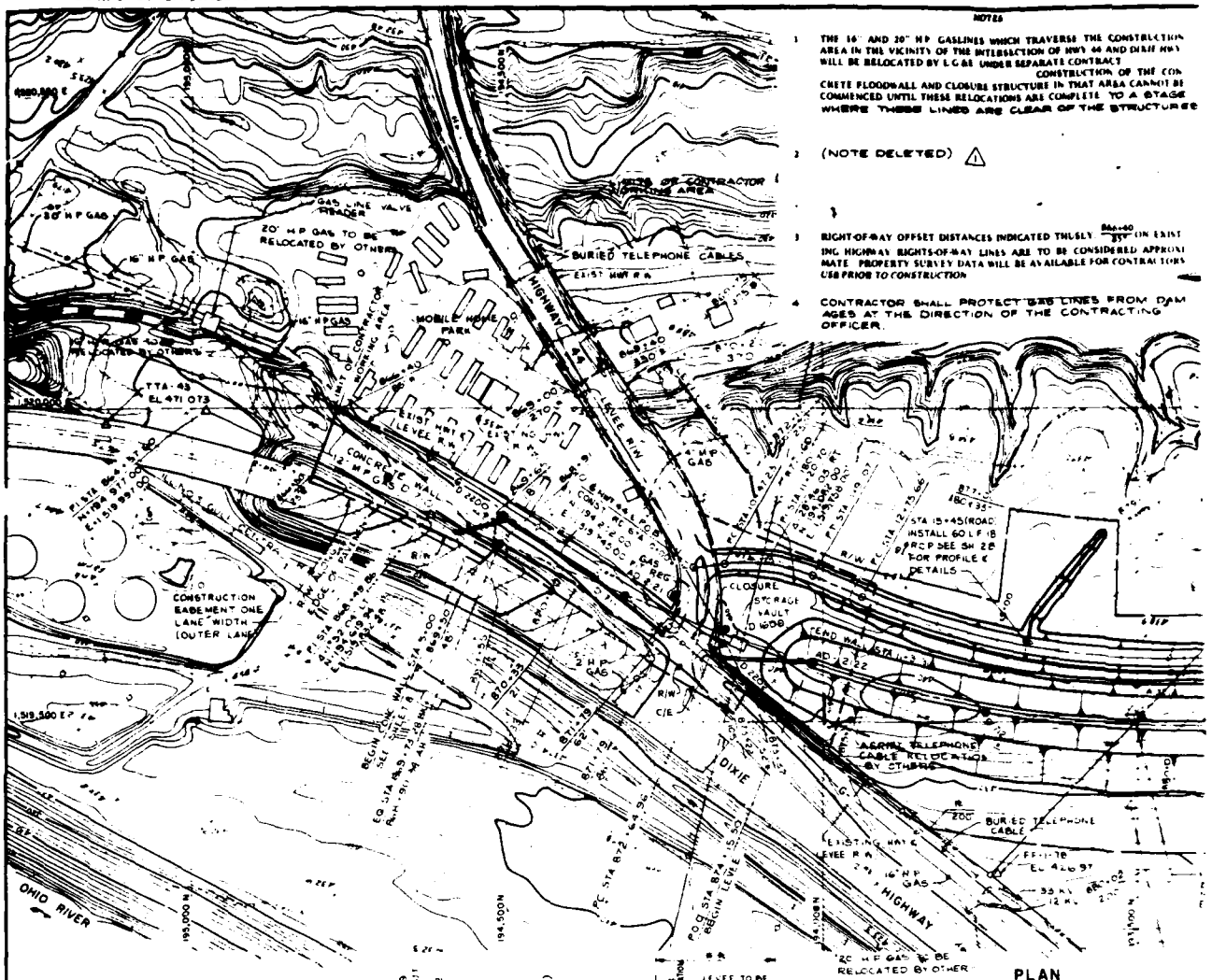

D-714
D-715
D-716


AD-2122
HA 537
HA 609

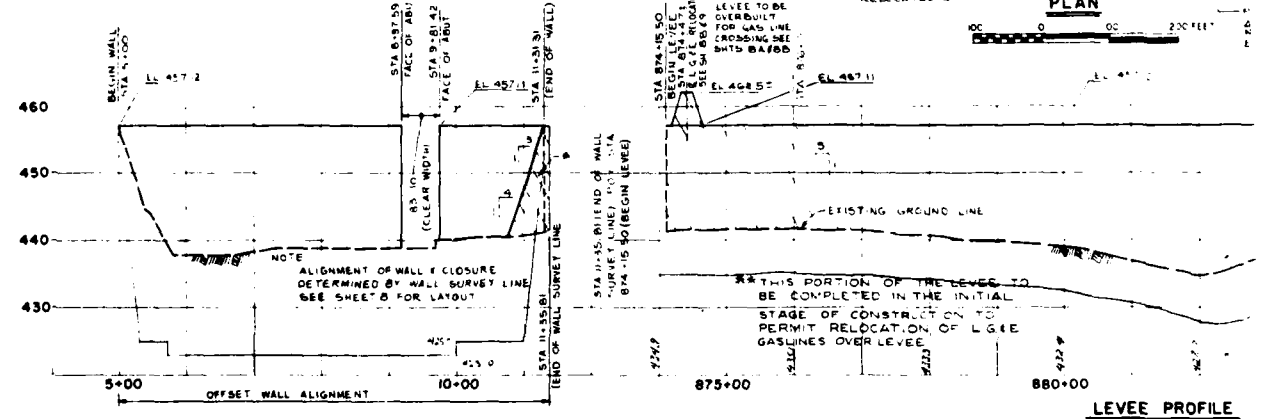
CORPS OF ENGINEERS

NOTES

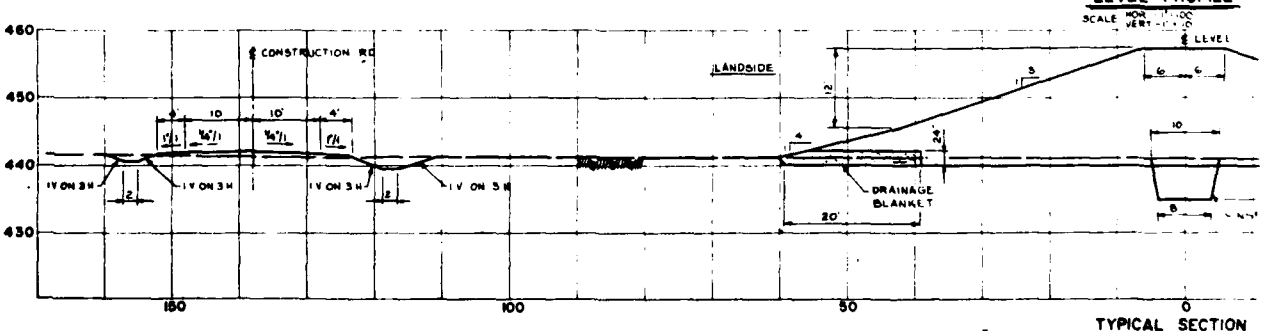
1. THE 16" AND 20" H.P. GASLINES WHICH TRAVERSE THE CONSTRUCTION AREA IN THE VICINITY OF THE INTERSECTION OF HWY 66 AND DIXIE HWY WILL BE RELOCATED BY L.G.&E. UNDER SEPARATE CONTRACT. CONSTRUCTION OF THE CONCRETE FLOODWALL AND CLOSURE STRUCTURE IN THAT AREA CANNOT BE COMMENCED UNTIL THESE RELOCATIONS ARE COMPLETE TO A STAGE WHERE THESE LINES ARE CLEAR OF THE STRUCTURES.
2. (NOTE DELETED) △1
3. RIGHT-OF-WAY OFFSET DISTANCES INDICATED THUS $\frac{8A6+00}{35'}$ ON EXISTING HIGHWAY RIGHTS-OF-WAY LINES ARE TO BE CONSIDERED APPROXIMATE. PROPERTY SURVEY DATA WILL BE AVAILABLE FOR CONTRACTORS USE PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL PROTECT GAS LINES FROM DAMAGES AT THE DIRECTION OF THE CONTRACTING OFFICER.



PLAN



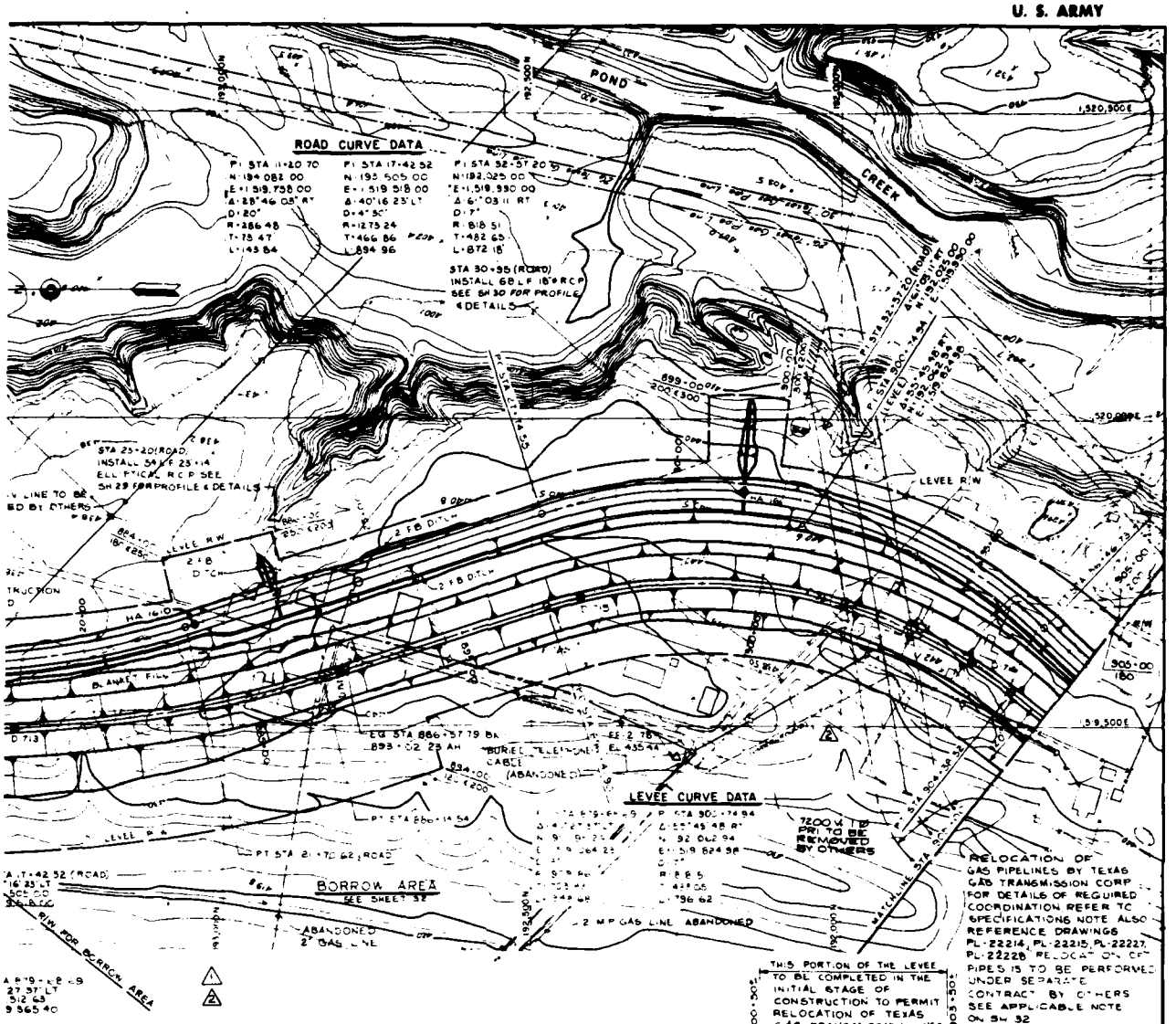
LEVEE PROFILE

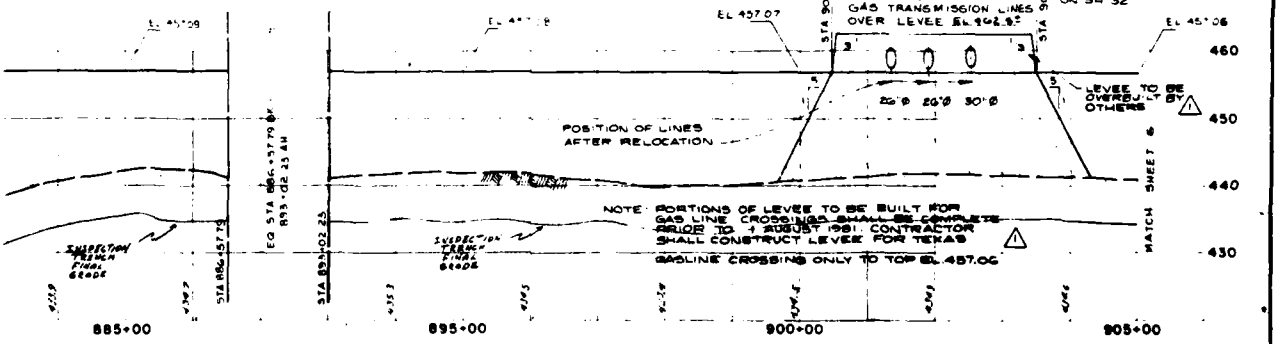


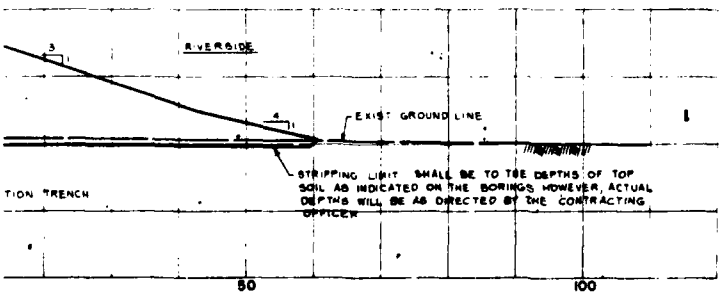
TYPICAL SECTION

△1

U. S. ARMY







2	19 AUG 81	GASLINE CROSSING DETAIL REVISED (CONT MOD.)	SAR	GAC
1	24 APR 81	GASLINE CROSSING DETAIL REVISED (CONT MOD)	SAR	JEJ
REVISION	DATE	DESCRIPTION	BY	APP'D

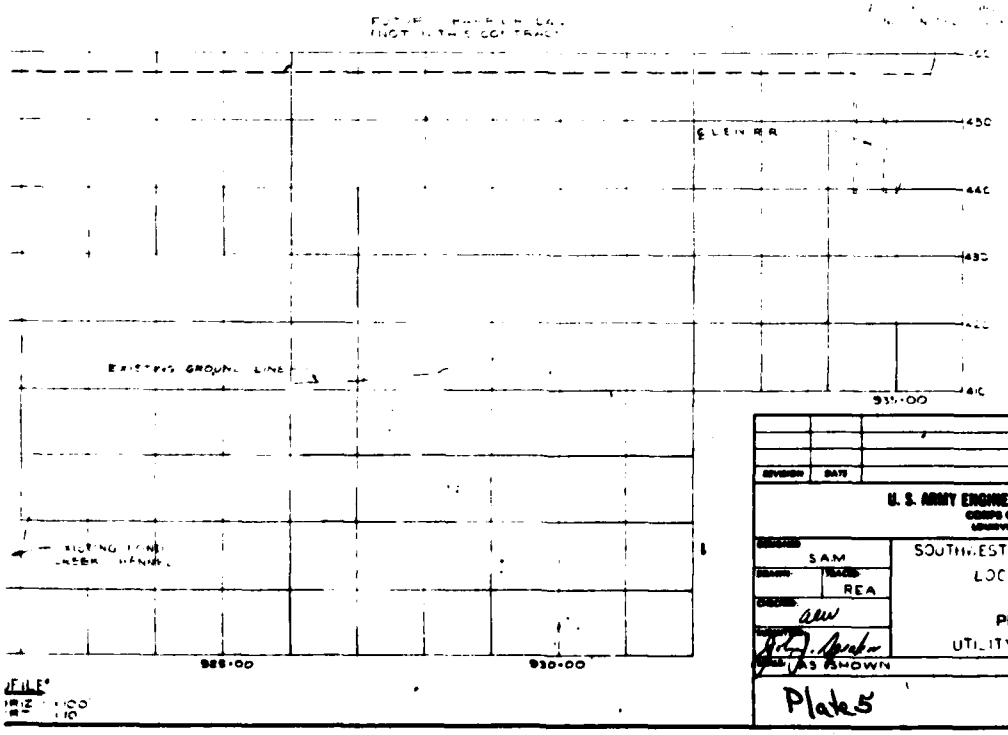
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

DESIGNED: A L W
DRAWN: C R P
CHECKED: S A M
SUBMITTED: [signature]
CHIEF, ED BROWN

SOUTHWESTERN JEFFERSON COUNTY, KY.
LOCAL FLOOD PROTECTION
SECTION - 4A (REVISED)
PLAN, PROFILE & TYPICAL SECTION

DATE: JULY 80
DRAWING NUMBER: 616-12.4/5

Plate 4



REVISION	DATE	DESCRIPTION	BY	APP'D

U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

DESIGNED	SAM
DRAWN / TRACED	REA
CHECKED	aew
SUBMITTED	
SCALE	AS SHOWN
DATE	JULY 80
	Plate 5
DRAWING NUMBER	616 12 4/7

SOUTHWESTERN JEFFERSON COUNTY, KY
LOCAL FLOOD PROTECTION
SECTION 4A (REVISED)
PROFILE OF LEVEE B
UTILITY RELOCATION SCHEDULES

COORDINATING AGENTS FOR UTILITIES

Texas Gas	South Central Bell	Louisville Gas and Electric Company	
Transmission Company	Telephone Company	Gas Engineering 1/	Electric Distribution 1/
Mr. James E. Grubbs	Mr. Merle Moulam, Jr.	Mr. Lou Johnson	Mr. J. A. French
Division Superintendent	Specialist	Supervisor	Supervisor
Suite 475 Mall Office Center	Outside Plant Engineering	Corner 7th & Ormsby Sts.	Corner 7th & Ormsby Sts.
400 Sherburn Lane	115 South Hubbards Lane	Louisville, KY 40210	Louisville, KY 40210
Louisville, Ky. 40207	Louisville, KY 40202	Tele. (502) 566-4388	Tele. (502) 566-4580
Tele (502) 897-3336	Tele. (502) 896-2431		

1/ Mr. J. A. French is assigned as main coordinator for both the gas engineering and electric distribution systems.

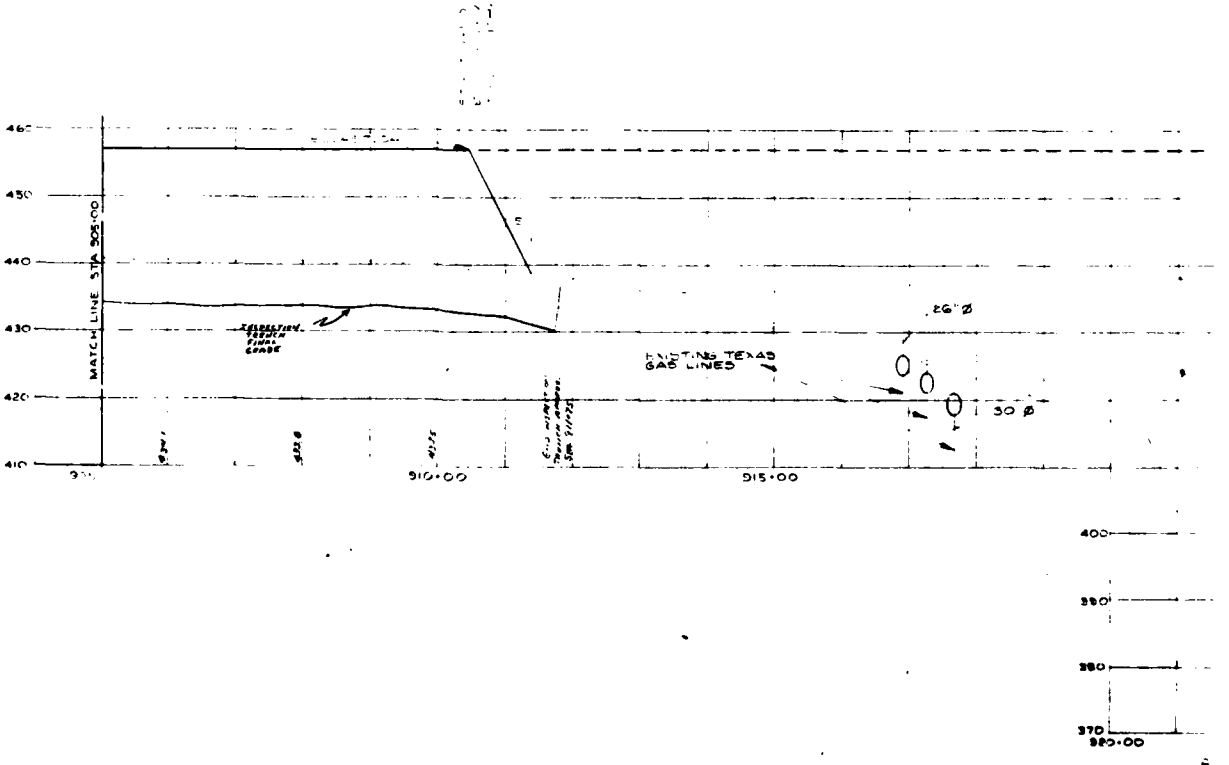
SCHEDULE OF EXISTING UTILITIES AND PROPOSED RELOCATIONS

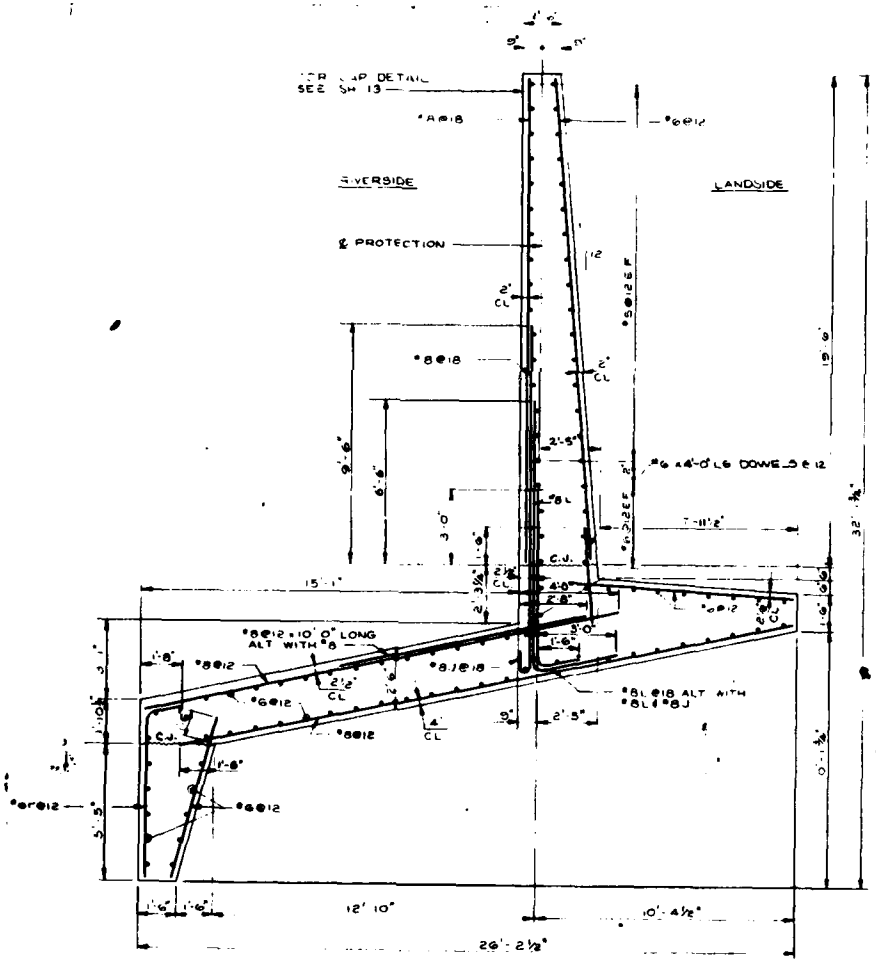
APPROX. 1/ STATION	SHEET REFERENCE	TYPE OF UTILITY	UTILITY OWNER	RELOCATIONS
9+44 (WALL)	5, 8B	16" H.P. GAS	L.G. & E.	TO BE RELOCATED BY OTHERS UNDER SEPARATE CONTRACT
6+58 (WALL)	5, 8B	20" H.P. GAS	L.G. & E.	DO
8+90 (WALL)	5, 8B	2" H.P. GAS	L.G. & E.	DO
916+80 TO 917+60 (LEVEE)	5, 6, BORROW AREA	26", 26" & 30" H.P. GAS 3/	TEXAS GAS TRANSMISSION CO.	TO BE RELOCATED BY OTHERS UNDER SEPARATE CONTRACT
9+80 (WALL)	5, 8B	600 PAIR BURIED TELE. CABLE	SOU. CEN. BELL TELE. CO.	RELOCATED BY OWNER CONVERTED TO AERIAL CROSSING / RELOC. IS COMPLETE
7+52 (WALL)	5, 8B	120 VOLT SECONDARY W/STREET LIGHTS	L.G. & E.	TO BE RELOCATED BY OWNER
10+01 (WALL)	5, 8B	33 KV & 12 KV	L.G. & E.	POLE CHANGES & CLEARANCE CHANGES BY OWNER
7+52 (WALL)	8B	PHONE BOOTH	SOU. CEN. BELL TELE. CO.	TO BE RELOCATED BY OWNER
10+18 (WALL)	5, 8B	7.2 KV 1Ø PRIMARY	L.G. & E.	POLE CHANGES & CLEARANCE CHANGES BY OWNER
879+45 (LEVEE)	5	33 KV	L.G. & E.	POLE CHANGES & CLEARANCE CHANGES BY OWNER
886+00± (LEVEE)	5, BORROW AREA	2" GASLINE (RESIDENCE SERVICE)	L.G. & E.	ABANDONED (CROSSES BORROW AREA) 4/
901+00± (LEVEE)	5, BORROW AREA	2" H.P. GASLINE (RESIDENCE SERVICE)	L.G. & E.	ABANDONED (CROSSES BORROW AREA) 4/
893+00 TO 903+00 (LEVEE)	5, BORROW AREA	BURIED TELE. RESIDENCE SERVICE LINES	SOU. CEN. BELL TELE.	ABANDONED (CROSSES BORROW AREA) 4/
DO	DO	RESIDENTIAL POWER (7200 VOLT 1Ø)	L.G. & E.	ABANDONED (CROSSES BORROW AREA) 4/

1/ LOCATION OF ACTUAL CROSSING OR VICINITY OF [illegible] PROTECTION - REFER TO SHEETS 5, 6, 8 OR BORROW AREA PLAN SHEET 52

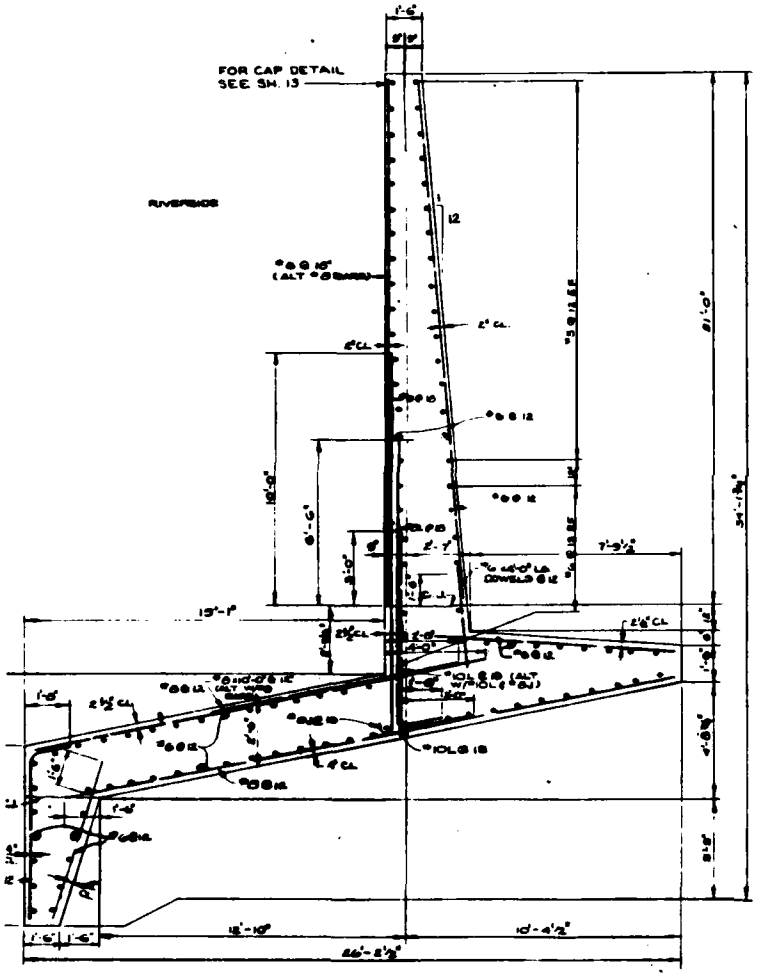
3/ REFER TO TEXAS GAS TRANSMISSION CO. LEVEE CROSSING DRAWINGS.

4/ RESIDENTIAL UTILITY SERVICE LINES INDICATED AS ABANDONED ARE DISCONNECTED AND SHALL BE REMOVED AS INDICATED [illegible] SHEET [illegible] REVISED





NOTE: FOR REINFORCING DETAILS RIVERSIDE FACE SEE SH. 11



TYPICAL SECTION - 22' T-WALL

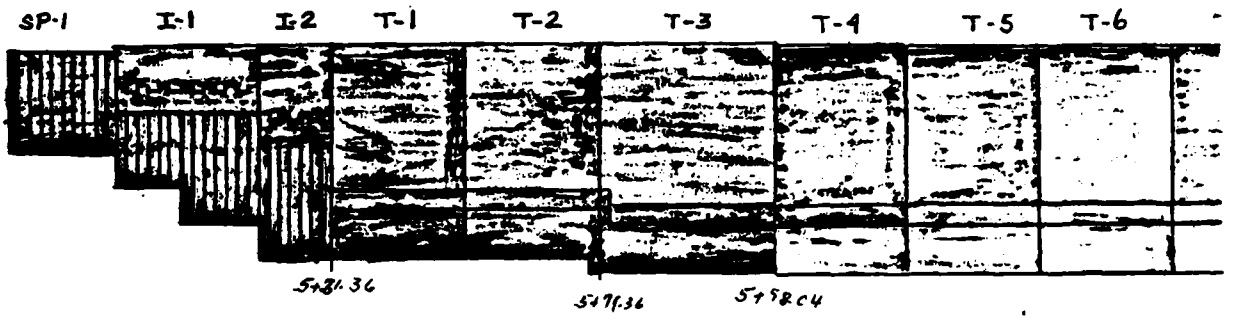
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

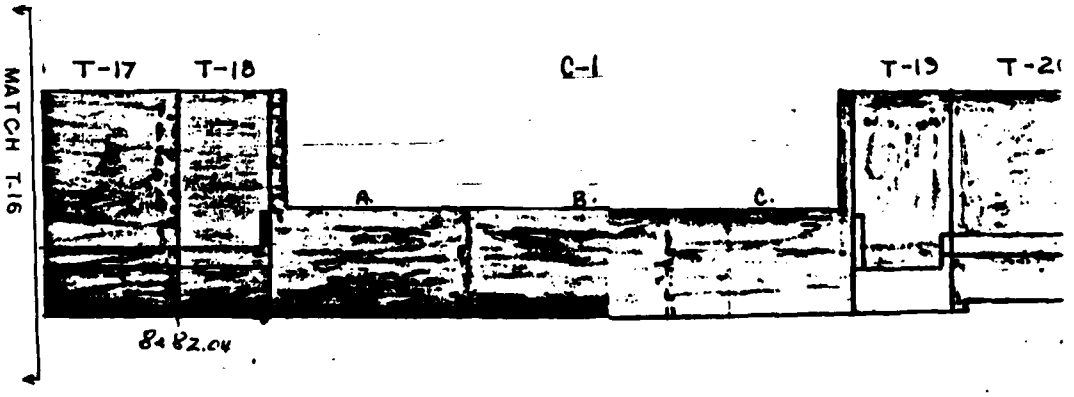
DESIGNED	D.K.M.
DRAWN	W.F.S.
TRACED	D.S.K.
CHECKED	J.M.R.
SUBMITTED	
SCALE	AS SHOWN
DATE	JULY 60

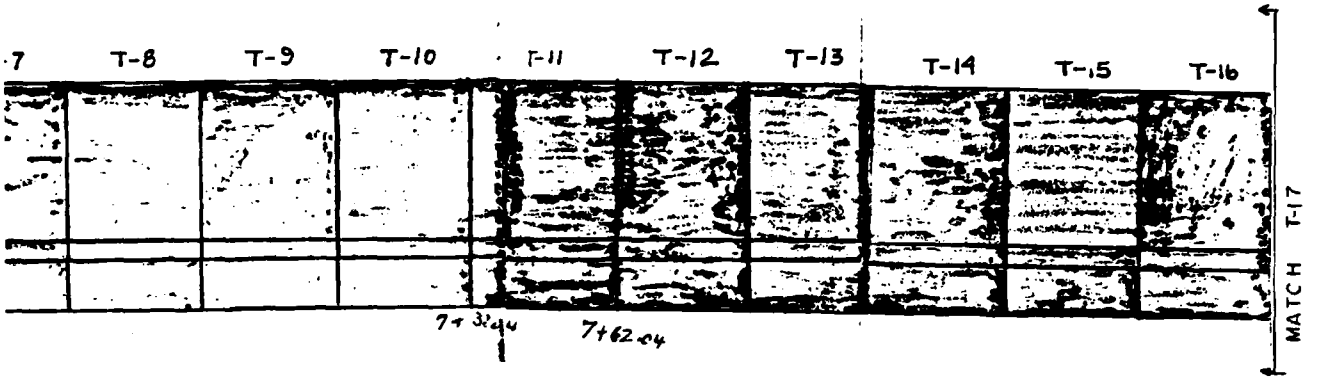
SOUTHWESTERN JEFFERSON COUNTY, KY.
LOCAL FLOOD PROTECTION
SECTION - 4A
22' T-WALL
TYPICAL SECTION & SPECIAL MONOLITH

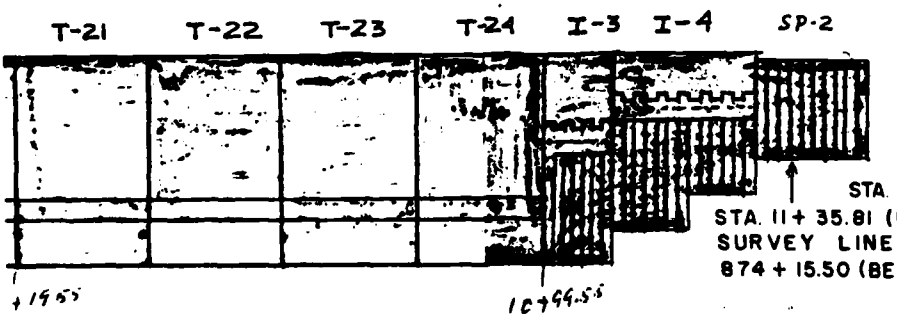
PLATE 6

616-12.4/11


SP-1
I-1
I-2
T-1
T-2
T-3
T-4
T-5
T-6
5481.36
5771.36
5958.04


MATCH T-16
T-17
T-18
C-1
T-19
A
B
C
8482.04





REVISION	DATE	DESCRIPTION	BY	APP'D

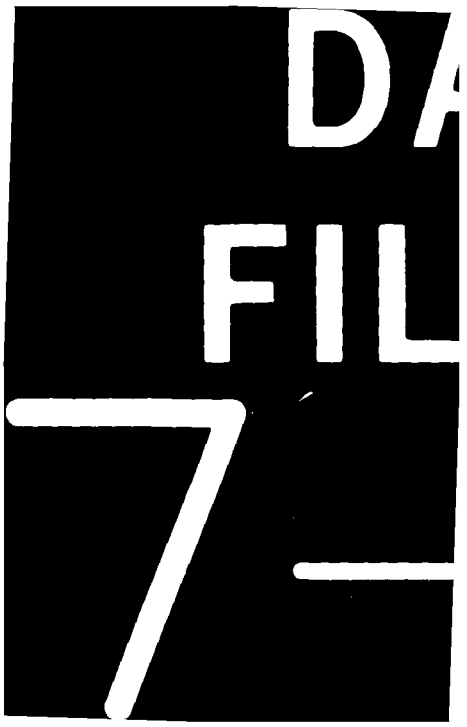
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

DESIGNED
DRAWN TRACED
CHECKED
SUBMITTED

SOUTHWEST JEFF. CO.
FLOOD PROTECTION
SECTION 4A
WALL & CLOSURE PROFILE

SCALE DATE

DRAWING NUMBER
PLATE 7


DA
FIL
7